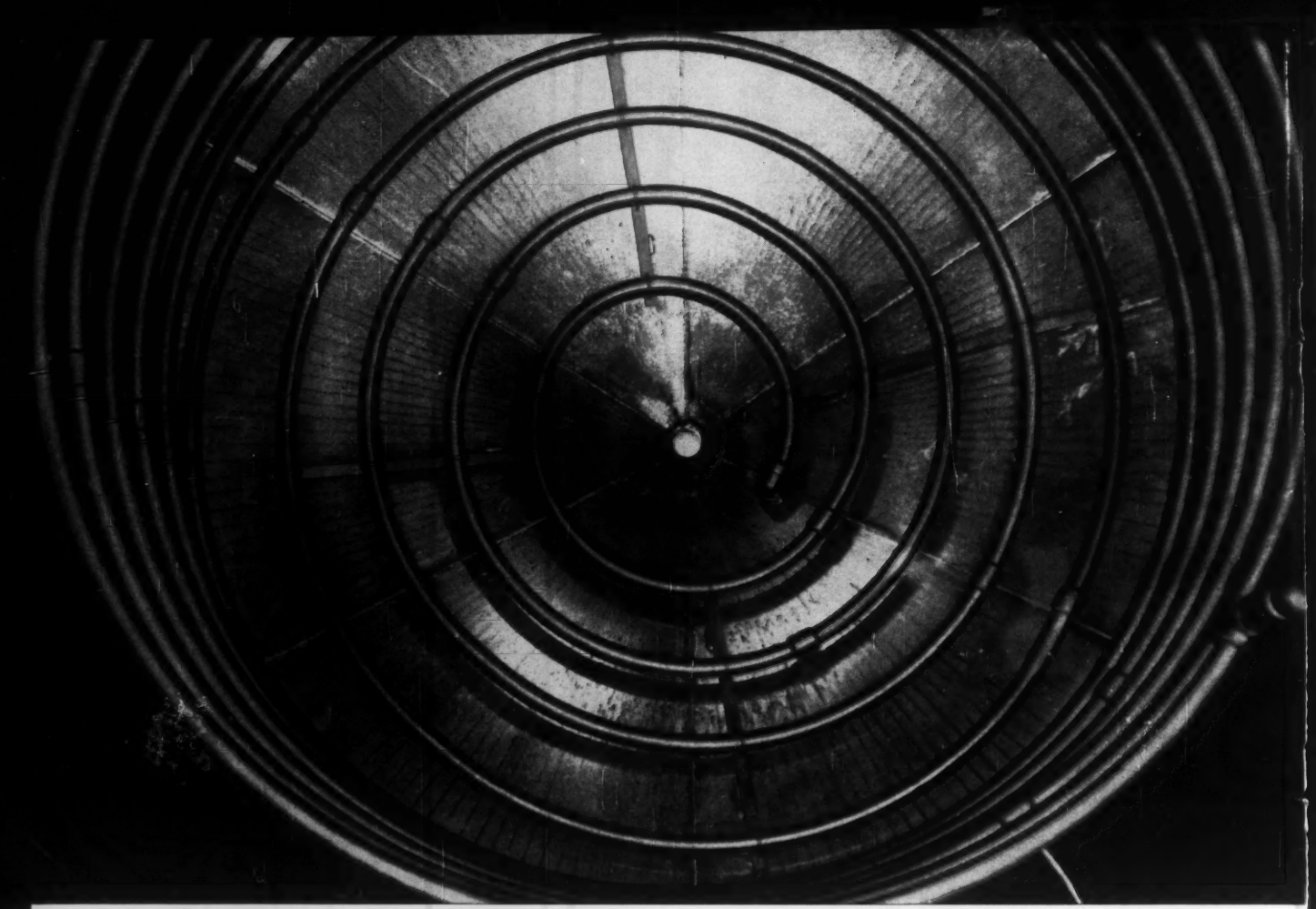
ENGINEERING NEWS-RECORD

"Pipemobile" lays heavy concrete pipe p. 30

A McGRAW-HILL PUBLICATION

E B POWER GS N
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH



This processing tank employs wrought iron pipe for heating coils. Excellent bending properties, as well as corrosion resistance, lead to wrought iron's selection for this installation.

Wrought Iron Pipe's ductility permits speedy bending and stretching without rupturing the metal

Readily bent and formed, hot or cold, wrought iron pipe's high-purity base and fibrous structure assure little or no "springback."

Evidence of wrought iron pipe's excellent bending properties is the extensive use of the material for heating coils, refrigeration coils and air brake piping where short radius bends are necessary. You can tack on the corrosion and fatigue resisting properties of the material, too, for its acceptance in these applications. Our technical bulletin, *The Bending and Flanging of Wrought Iron Pipe*, shows how to produce uniformly superior results. Write for a copy. A. M. Byers Company, Clark Building, Pittsburgh 22, Pennsylvania.

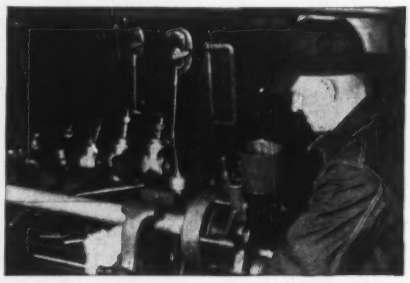
Available in Canada and throughout the world

◀ EASY TO WELD

Wrought iron produces sound welds by any of the commonly used processes because it is self-fluxing. Complete line of wrought iron welding fittings for pipe is available in sizes ¼" to 12".

EASY TO THREAD ▶

The machining and threading properties of wrought iron pipe are excellent. The uniform structure of the metal contributes to smooth, sharp threads.



BYERS Wrought Iron Tubular and Hot Rolled Products

ALSO ELECTRIC FURNACE QUALITY STEEL PRODUCTS

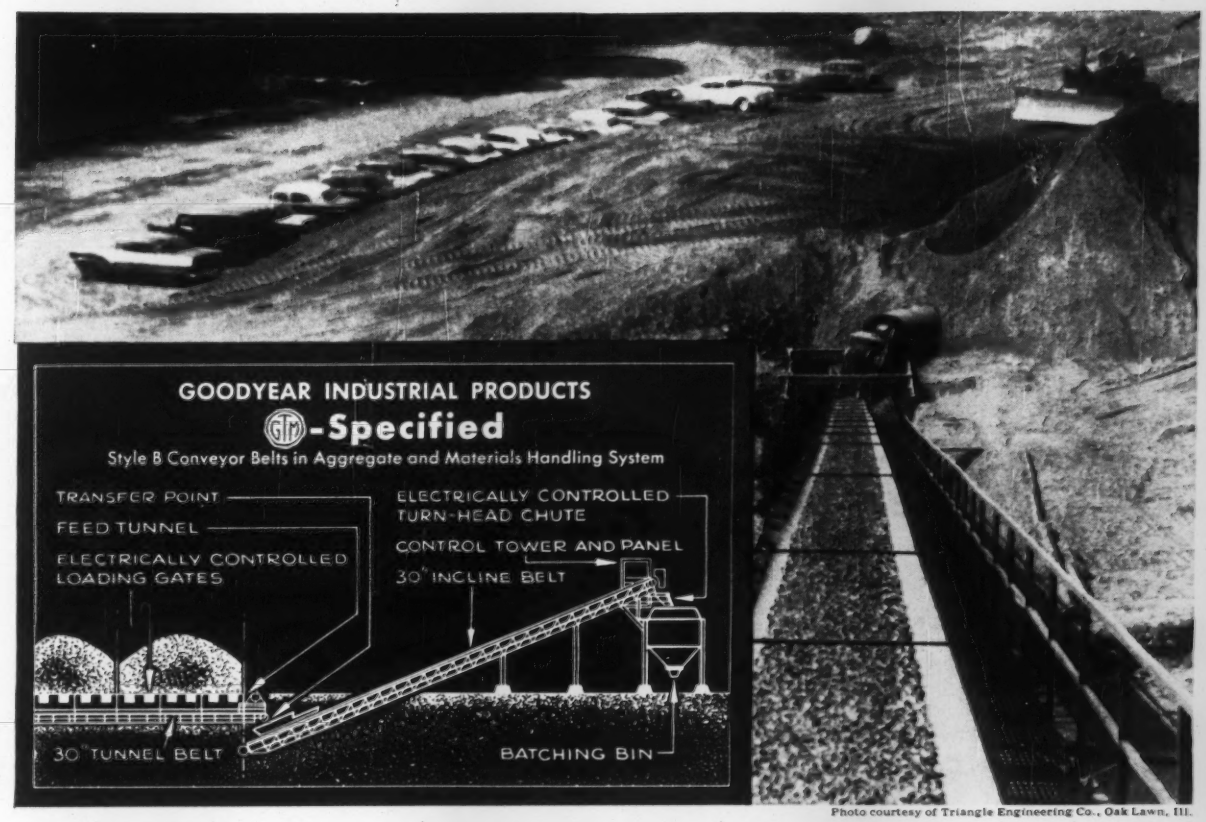


Photo courtesy of Triangle Engineering Co., Oak Lawn, Ill.

Belts out new highways twice as fast—at 2/3rds the cost

Giving a real boost to the highway building program is this unique materials-handling conveyor system developed by a Midwestern firm. Sand, aggregate and cement—in controlled sequence—are metered through openings in an underground steel "tunnel." Then they're carried through this 280-foot "tunnel" on one conveyor belt—up to the mixer on a second, interconnected belt.

The belts are Goodyear Style B Conveyor Belts. They were recommended by the G.T.M.—Goodyear Technical Man—who worked closely with the development engineers. And so successful were they in perfecting this portable 525-ton-per-hour unit, that road builders are able to eliminate *two* costly 1½-yard cranes—save 75% on labor—cut maintenance expenses by 85%.

Moreover, the conveyorized batch plant can turn out 1 mile of 24-foot-span highway—per day. That's twice the speed of old methods. And it cuts the concrete-making costs by an eye-opening one-third!

Need some technical help with a pet cost-cutter-and-labor-saver you've been working on? If it uses industrial rubber products of any kind, you can't do better than talk to the G.T.M. And you can reach him through your Goodyear Distributor—or through Goodyear, Industrial Products Division, Akron 16, Ohio.

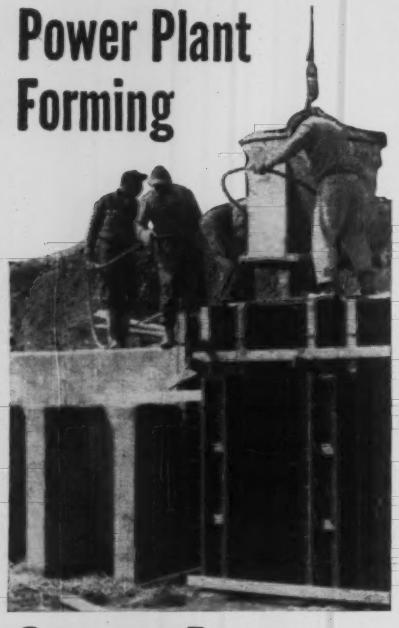
CONVEYOR BELTS by

GOODYEAR

THE GREATEST NAME IN RUBBER

IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

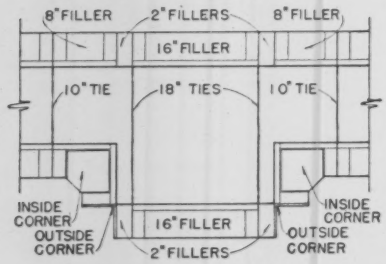
Power Plant Forming



Symons Forms Help Contractor Race Clock

Pour 530 Yards of Concrete In 5½ Hours

Racing a siege of wet, windy weather, workmen on the new $10 million Blue Valley Station of the Independence, Mo. power plant, teamed up to pour 530 yards of concrete during one 5½ hour period.



Pilasters similar to the ones shown are easy to erect with Symons Fillers and Corners.

Sharp Bros. Contracting Co., Kansas City, the contractor, is using 8,000 square feet of Symons Standard High Strength Forms to pour 40,000 square feet of concrete. Much of the concrete is in thick slabs and pedestal bases with wall thicknesses varying from six to 84 inches. Symons 84-inch washer ties are being used in pouring pedestals for the turbines.

You can rent Symons Forms, Shores and Column Clamps with purchase option. Information on Symons products upon request.

Symons

SYMONS CLAMP & MFG. CO.

4265 Diversey Avenue, Dept. A-8

Chicago 39, Illinois

ENGINEERING NEWS-RECORD

EIGHTY-FOURTH YEAR OF PUBLICATION

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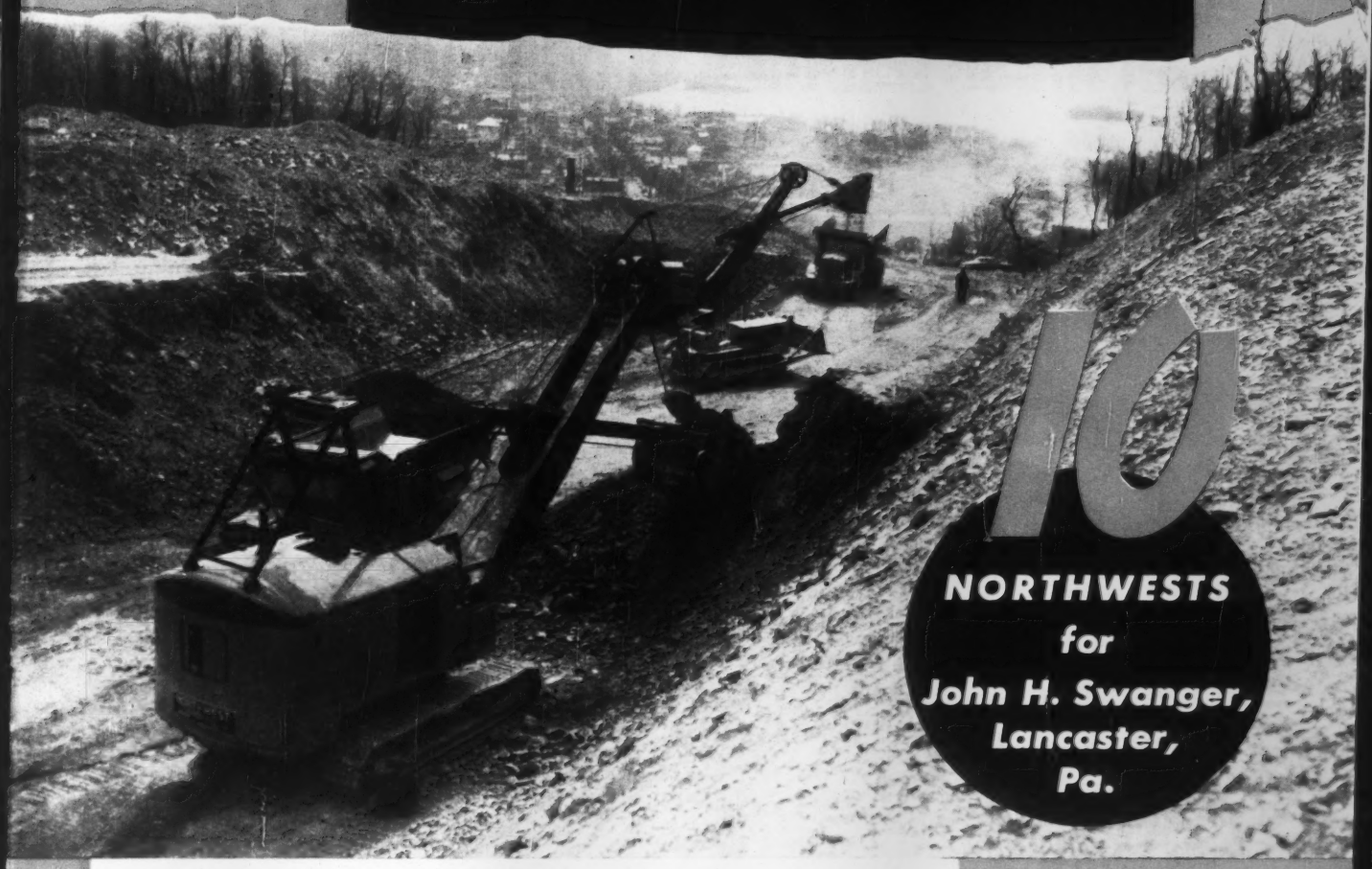
Problem—816,000 Cu. Yds. of Rock



ROUTE 441 near Columbia, Pa., comes over the heights of the Susquehana River. Here John H. Swanger's contract for 2.4 miles of road runs through deep cuts up to 175 ft. and involves 816,000 cu. yds. of rock. Jobs like this call for the best in equipment—equipment that will show a profit! Constant, steady output on the job. That's the sort of thing that makes money! Day in, day out, output! It is the steady, dependability that has made Northwest the repeat order machine. It has been dependability that has put 10 Northwests on the jobs of John H. Swanger.

Your Northwest is always ready to go! *We hear it everywhere and Northwest users will tell you so!*

Northwest dependability is a direct result of Northwest design. Power is brought to the action by the most direct route. Machinery Bases and Machinery Side Frames are heat treated, cast steel to take the shocks of digging. Parts and assemblies are ruggedly built and heavy enough for the job to be done. The simple "Feather-Touch" Clutch Control brings ease of operation and is free from compressors, valves, tubing and other delicate mechanisms. The Helical Gear Drive, the Cushion Clutch, Uniform Pressure Swing Clutches not only play a part in better output but they combine in smooth, trouble-free operation to *assure performance when it is needed.* Your Northwest is always ready to go! There is no more valuable quality in Shovel or Crane equipment. You can buy it in a Northwest.

NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle St., Chicago 3, Illinois

Perhaps Rubber Tired Equipment will do your job better. The Northwest Truck Crane brings you a combination of advantages found in no other similar machine. 25 and 35-ton capacity.

NORTHWEST *Always Ready to* GO

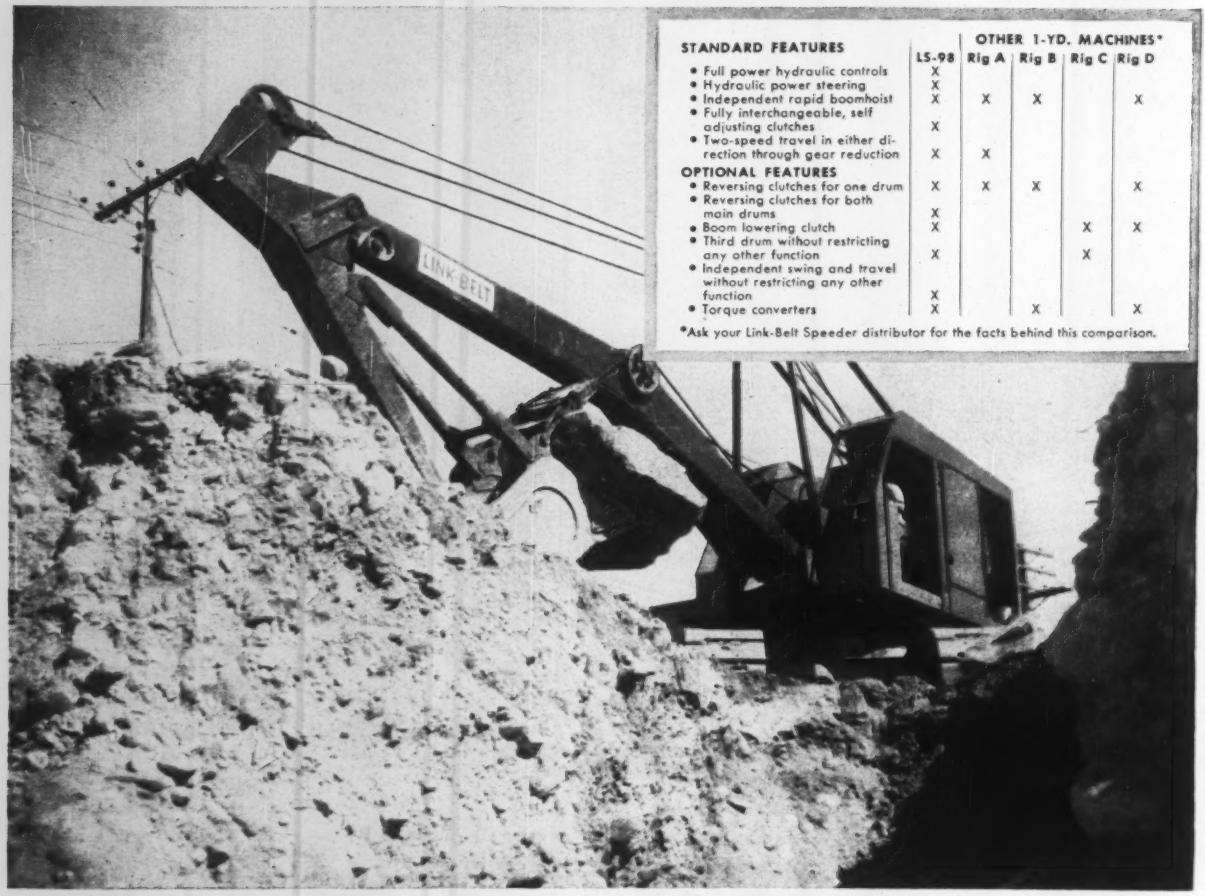
NORTHWEST EQUIPMENT IS BUILT IN THE FOLLOWING SIZES

SHOVELS	CRANES	DRAGLINES	PULLSHOVELS	TRUCK CRANES
¾ Yd. to 2½ Yd. Capacity	13-Ton to 50-Ton Capacity	¾ Yd. to 3 Yd. Capacity	¾ Yd. to 2½ Yd. Capacity	25-Ton and 35-Ton Capacity

G-55-1C

Only with Link-Belt Speeder ***Full-Function*** *design . . .*

all these features in one shovel-crane



STANDARD FEATURES	LS-98	OTHER 1-YD. MACHINES* Rig A	Rig B	Rig C	Rig D
• Full power hydraulic controls	X				
• Hydraulic power steering	X				
• Independent rapid boomhoist	X	X	X		X
• Fully interchangeable, self adjusting clutches	X				
• Two-speed travel in either direction through gear reduction	X	X			
OPTIONAL FEATURES					
• Reversing clutches for one drum	X	X	X		X
• Reversing clutches for both main drums	X				
• Boom lowering clutch	X			X	X
• Third drum without restricting any other function	X			X	
• Independent swing and travel without restricting any other function	X				
• Torque converters	X		X		X

*Ask your Link-Belt Speeder distributor for the facts behind this comparison.

Get a profit bonus with these standard features . . . tailor the machine to the job with these optional features

Exclusive with Link-Belt Speeder — revolutionary *Full-Function* design provides a separate power train for each machine function.

That's why you can have and use all these 11 major features on the same machine — without restricting other operations.

Practically double power train life

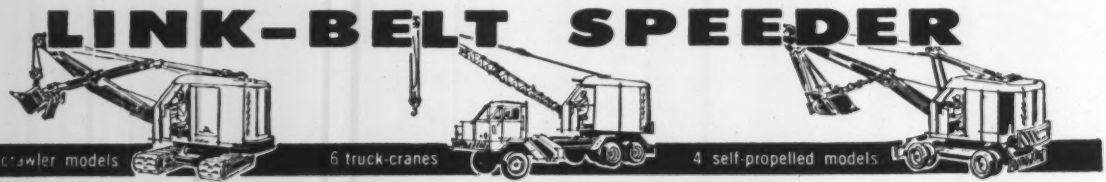
And that's why *Full-Function* design spreads wear over more clutches, shafts, gears and bearings. Only the power trains in use are under load!

But this is only one of the many Link-Belt Speeder advantages. You also get —

- **Greater usable horsepower**
- **Speed-o-Matic—proven power hydraulic controls**
- **Bonus crane capacity working with long booms at extended radii**

For complete details, contact your distributor. Or write Link-Belt Speeder Corporation, Dept. ENR-158, Cedar Rapids, Iowa, for Book No. 2553. 14,778

LINK-BELT SPEEDER

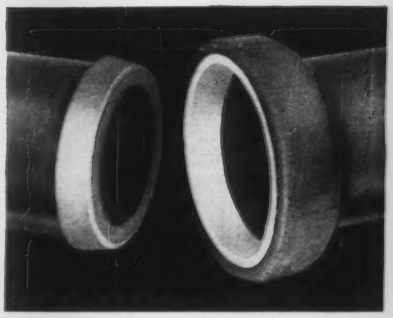


18 crawler models | 6 truck-cranes | 4 self-propelled models

It's time to compare . . . with a Link-Belt Speeder

Protect your community's health SIX WAYS with longer, stronger AMVIT Clay Pipe

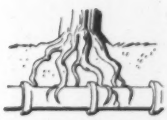
Outstanding Mechanical Joint
on pipe over 4 feet long
One of your City's Lifelines



Each year thousands of taxpayer's dollars are *wasted* on "substitute" materials used in sewer lines. Failure and collapse of non-clay sewers endangers the health of the community. Sewers must be constructed of permanent materials for they carry to safe disposal thousands of tons of waste laden with dangerous and deadly bacteria.

Amvit Jointed Clay Pipe gives decades of uninterrupted underground service. Neither joint nor pipe is affected by these factors:

1. ROOTS

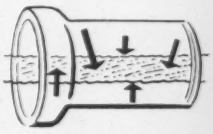


force the pipe out of line and clog the system in search of moisture. Amvit is a compression joint on the ball and socket principle. The surfaces of both bell and spigot are in constant compression. Roots cannot enter the line.

2. CHEMICAL ATTACK

is from acid-laden, high temperature sewage, discharged from dishwashers, garbage disposal units and washing machines. Like the clay pipe, Amvit Joint is acid resistant and will not corrode or decompose.

3. FLOW LINE ATTACK



refers to that section of the pipe which lies between low and high water. Grease and scum tend to build up here and acts as a solvent on certain synthetic substitute pipes. The design of the Amvit Joint assures that the pipe is self centered at all times. This gives perfect alignment and self-cleansing.

4. EROSION

is the wearing out of pipe by abrasive action of sand and gravel. Soft pipes become scratched and roughened and tend to clog up. Because Amvit is a really tight joint, no foreign matter can possibly enter the line.

5. DECOMPOSITION

is the chemical breakdown of the component elements of the pipe. Only clay pipe resists decomposition. Like the pipe, the joint is unaffected by ordinary conditions of underground service.

6. RODENTS AND TERMITES

will gnaw away wrappings and coatings of pipe. Amvit Clay Pipe defies even the sharpest toothed rodent and is immune to termite attack.

For more information on how Amvit can help cut your sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

*T. M. Registered

SINCE 1900

American Vitrified Products Company
CLEVELAND OHIO

MANUFACTURERS OF: Clay Pipe, Flue Liners, Clay Liner Plates and Concrete Pipe.

Plants Across the Nation . . . Brazil, Indiana · Chicago, Illinois · Cleveland, Ohio · Crawfordsville, Indiana · Detroit, Michigan · East Liverpool, Ohio · Fenton, Michigan · Grand Ledge, Michigan · Lisbon, Ohio · Los Angeles, California · Milwaukee, Wisconsin · South Bend, Indiana · Uhrichsville, Ohio

FORD makes the

3 all-new Super Duty V-8's

- Gross horsepower up to 277
- Gross torque up to 490 lbs-ft
- Modern Short Stroke design
- Three-stage cooling system
- Machined combustion chambers
- Sodium-cooled exhaust valves
- Stress-relieved block and heads
- Pyramid-type connecting rods
- Internally mounted oil cooler
- Two-quart oil filter
- Water-jacketed intake manifold
- Submerged-type electric fuel pump

277-hp Short Stroke V-8
Torque: 490 lbs-ft
@ 1800-2300 rpm

260-hp Short Stroke V-8
Torque: 430 lbs-ft
@ 1800-2300 rpm

226-hp Short Stroke V-8
Torque: 350 lbs-ft
@ 1800-2300 rpm

10 all-new Extra Heavy Duty Series

GVW's up to 51,000 lb. For '58, ten new basic series are added to Ford's already extensive Heavy and Extra Heavy Duty line. Four new Tilt Cabs, four new Conventionals, and two new Tandem models offer GVW ratings up to 51,000 lb.

GCW's up to 75,000 lb. New T-950 Tandem is rated for 75,000-lb. GCW. Biggest single-rear-axle models are rated for 65,000-lb. GCW.

Front axle capacities up to 15,000 lb. Choice of three front axles in most new Ford Extra Heavies. Rated capacities of 9,000 lb., 11,000 lb. and 15,000 lb.

Rear axle capacities up to 29,000 lb. Wide choice of rear axles includes single-speed and two-speed, single reduction and double reduction types. Capacities range from 18,000 lb. to 29,000 lb.

Bogie axle capacities up to 38,000 lb. For '58 there are two new Extra Heavy Duty Tandem Axle models. The new T-950 Series features a tandem rear axle assembly rated for 38,000 lb. New T-850 Series offers choice of 28,000- or 34,000-lb. bogies.

New highway transmissions. Roadranger transmission is available in all ten new Ford Heavies and Extra Heavies. Up to 33% less shifting. "Short Fourth" highway transmissions also available on "F" and "C" Series. With these new transmissions, engines operate in peak horsepower range with greater fuel economy.

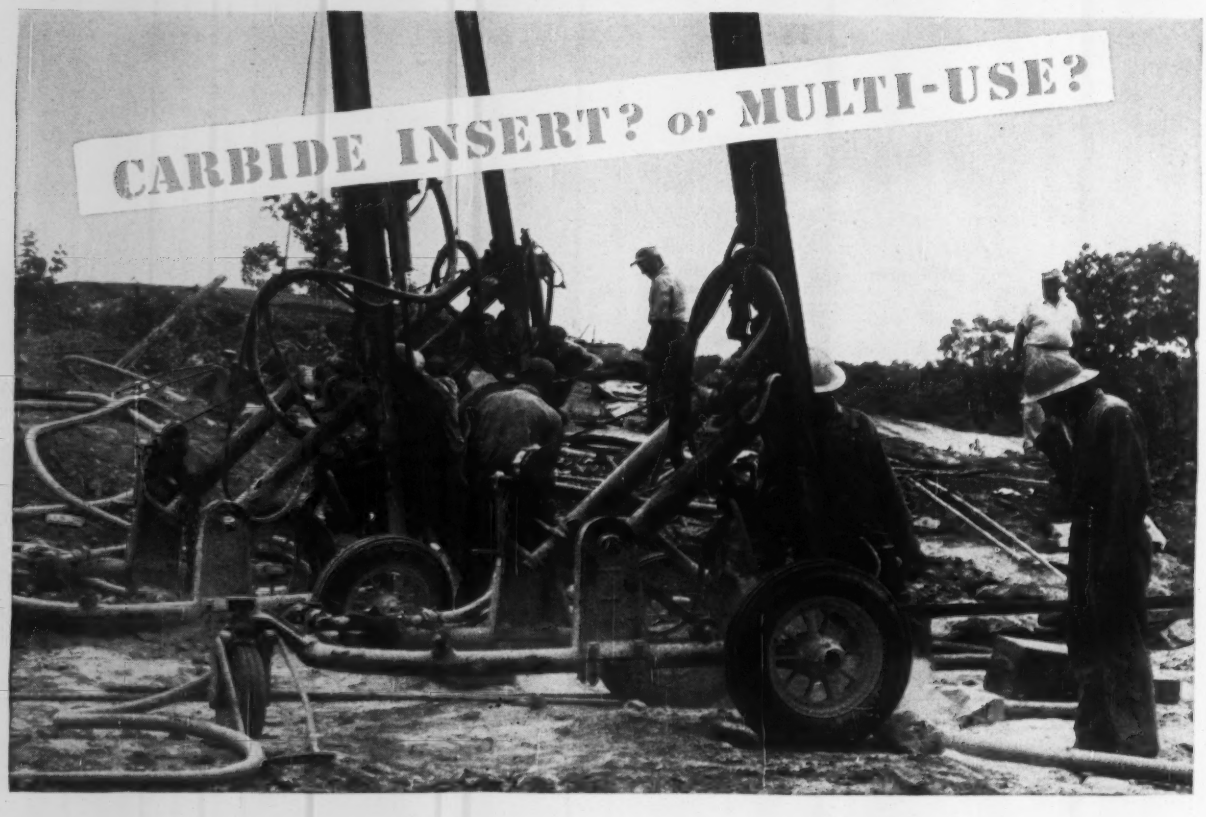
big move for '58

–up to 534 cu. in.

New Series T-950 Tandem model is biggest capacity Ford truck ever built! Rated up to 51,000-lb. GVW—75,000-lb. GCW. New 534-cu. in. Super Duty V-8 provides exceptional horsepower and torque with rugged durability.

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!



Westchester Rock, Inc., reports faster drilling, fewer bit changes in granite gneiss with TIMKEN® carbide insert bits

THE new Cross Westchester Expressway cuts through hard, abrasive granite gneiss. Drilling depths often reach 30 feet. Yet good speed and minimum bit changes are reported by Westchester Rock, Inc., of White Plains, N.Y. They're holding cost per foot-of-hole down with Timken® carbide insert bits.

You'll make good time in tough rock with these bits, too. But carbide insert bits may not be your best bet for every job. In ordinary ground, where you can drill out full increments of steel and do proper and controlled bit reconditioning, you'll get your lowest cost per foot-of-hole with Timken multi-use bits.

Multi-use or carbide insert, Timken bits save time for your drillers because they are interchangeable in the same thread series. When drilling conditions change, you can change bits without the trouble of changing drill steels. And Timken bits last longer because their special shoulder union protects threads against drilling impacts.

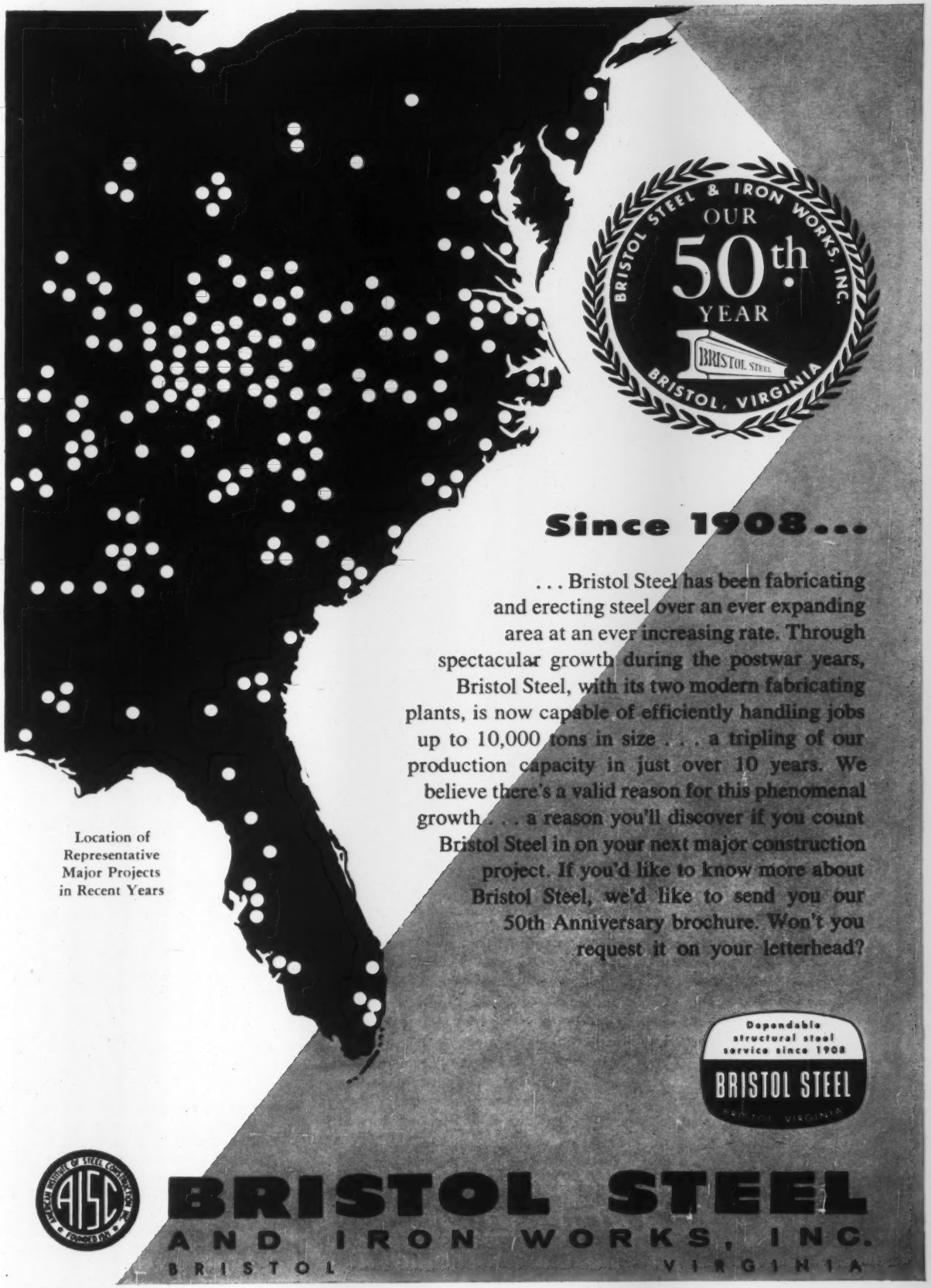
To assure the quality of Timken bits, we make them from our own electric furnace, Timken fine alloy steel. No other American bit manufacturer takes this extra quality control step. Let us recommend the right bit for your next job. Just call or write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, O. Cable: "TIMROSCO".

Timken threaded multi-use rock bit

Timken threaded carbide insert rock bit

TIMKEN *your best bet for the best bit for every job*

TRADE-MARK REG. U. S. PAT. OFF.



Location of Representative Major Projects in Recent Years

Since 1908...

. . . Bristol Steel has been fabricating and erecting steel over an ever expanding area at an ever increasing rate. Through spectacular growth during the postwar years, Bristol Steel, with its two modern fabricating plants, is now capable of efficiently handling jobs up to 10,000 tons in size . . . a tripling of our production capacity in just over 10 years. We believe there's a valid reason for this phenomenal growth . . . a reason you'll discover if you count Bristol Steel in on your next major construction project. If you'd like to know more about Bristol Steel, we'd like to send you our 50th Anniversary brochure. Won't you request it on your letterhead?

Dependable structural steel service since 1908
BRISTOL STEEL
BRISTOL VIRGINIA

AISC

BRISTOL STEEL
AND IRON WORKS, INC.
BRISTOL VIRGINIA

New HYSTER Space-Saver® LIFT TRUCKS are Powered by CONTINENTAL

New series includes 6000 (illustrated), 7000 and 8000-lb. capacity models.

Outstanding specialists in two fields have teamed their engineering and production experience to power this new series with a customized engine built specifically for lift truck service. Functionally designed by Henry Dreyfuss, with operator comfort and convenience as a major consideration, the new lift trucks combine ease of handling with high productive capacity and long life. Like so much of the modern equipment speeding the world's work today, they offer that extra assurance of lasting satisfaction, engineered-to-the-job Continental Red Seal power.

ANY EQUIPMENT IS BETTER EQUIPMENT WITH DEPENDABLE CONTINENTAL POWER

Continental Motors Corporation
MUSKEGON • MICHIGAN

Reader Comment

Horizontal Reinforcement

SIR—Many articles have been written and many recommendations made about horizontal reinforcements in masonry walls. When reinforcing is used with concrete, only steel that is actually in tension is effective in controlling shrinkage and temperature cracking. This is a point often overlooked.

Many masons still place horizontal reinforcement on the webbing of the block and then cover the reinforcement with mortar. This results in a great deal of loss of the bonding quality.

For maximum bond it is important that the reinforcement be completely covered with mortar. When reinforcement is used with concrete block or clay tile, bonding is best effected by first spreading the mortar over the face shell webbing, and then laying the reinforcement in the mortar bed.

An application of this type assures maximum bond strength. Reinforcement not protected by mortar will rust and deteriorate, often staining the wall.

JOSEPH N. LUCAS
AA Wire Products Co.
Chicago, Ill.

Plastics in Building Codes

SIR—The article, "Uniform Building Code Changed" (ENR Sept. 26, p. 23), stating that for the first time plastics will be covered in a widely used building code is not correct. The October, 1954, amendments to the 1949 edition of the National Building Code recommended by the National Board of Fire Underwriters represents the first time that plastics were covered in a widely used building code. The 1955 edition of the National Building Code covers the use of plastics in basically the same way they are covered in the 1954 amendments.

Under the National Building Code, plastics are regulated in basically the same way as other building materials. This means that plastics are regulated on the basis of the same ASTM fire tests that are applicable to other building materials. We believe this is the

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

AMERICAN BRIDGE uses truck cranes on Mackinac Bridge construction

P&H

Construction of the Mackinac Bridge called for accurate crane work in extremely close quarters. For the job the American Bridge Division of United States Steel used two, highly maneuverable, 35-ton P&H "555" truck cranes. They laid the bridge flooring with precision and speed to assist in meeting the November 1st opening date.

HERE IS WHY P&H SATISFIES USERS:

- P&H planetary boom hoist lowers the boom under power for real precision work.
- Boom motions are smoother and faster with P&H hydraulic controls.
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Construction & Mining Division
Milwaukee 46, Wisconsin

only fair and proper way to regulate any building material.

As indicated in the article, the small-scale ASTM tests for plastics are not intended to be used for evaluating the fire hazard of building materials. Nonetheless, such tests are being used as the basis for regulating plastics on the premise that they provide a means for controlling the use of "rapid burning" plastics. We submit that such tests do not show whether a plastic would be "rapid burning" under fire conditions and therefore do not provide a means for controlling the use of "rapid burning" plastics.

In at least one instance, a plastic that obtained a favorable rating under the small-scale tests was tested in accordance with ASTM E-84 with disastrous results. The plastic burned vigorously and gave off a dense black smoke. In addition, unusual difficulty was encountered in extinguishing the burning plastic.

Further, if a material is so used in building construction to present an exposed interior surface along which flame could travel and thus introduce a fire hazard, it should be regulated on the same basis as interior finish materials. We know of no reason to exempt materials from such regulation because they are light transmitting.

E. W. Fowler
Director of Codes and Standards
National Board of Fire Underwriters
New York, N. Y.

Grass Vs Economy

Sir—For generations the typical cross-section of an urban street or highway in areas other than downtown or business, and some times in those areas, has included a grass plot between the curb and gutter and the sidewalk.

It is my belief that present designers of streets and highways are continuing to use grass plots between the curb and gutter and the sidewalk largely because such a design is traditional. The principal reasons that I see for use of grass plots is to provide an area for utility poles and for roadside planting of trees. The reasons for eliminating them and having the sidewalks contiguous to the curbs are I think, overwhelming.

The idea of trees and utility poles along the same narrow area always results in the mutilation of the trees. Grass being under the trees and subjected to pedestrian traffic does not do well either. Considering these factors and the way grass plots are generally neglected by municipalities, counties and states, they are generally anything but attractive; and instead of adding beauty to the street, far more often

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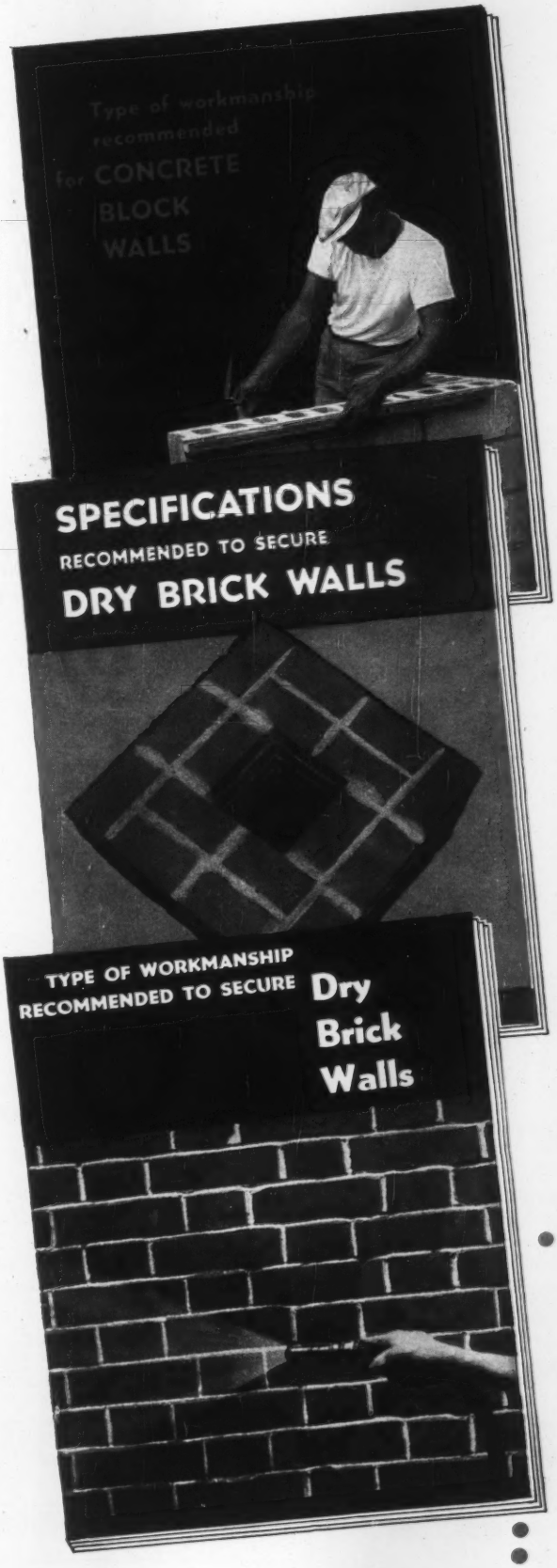

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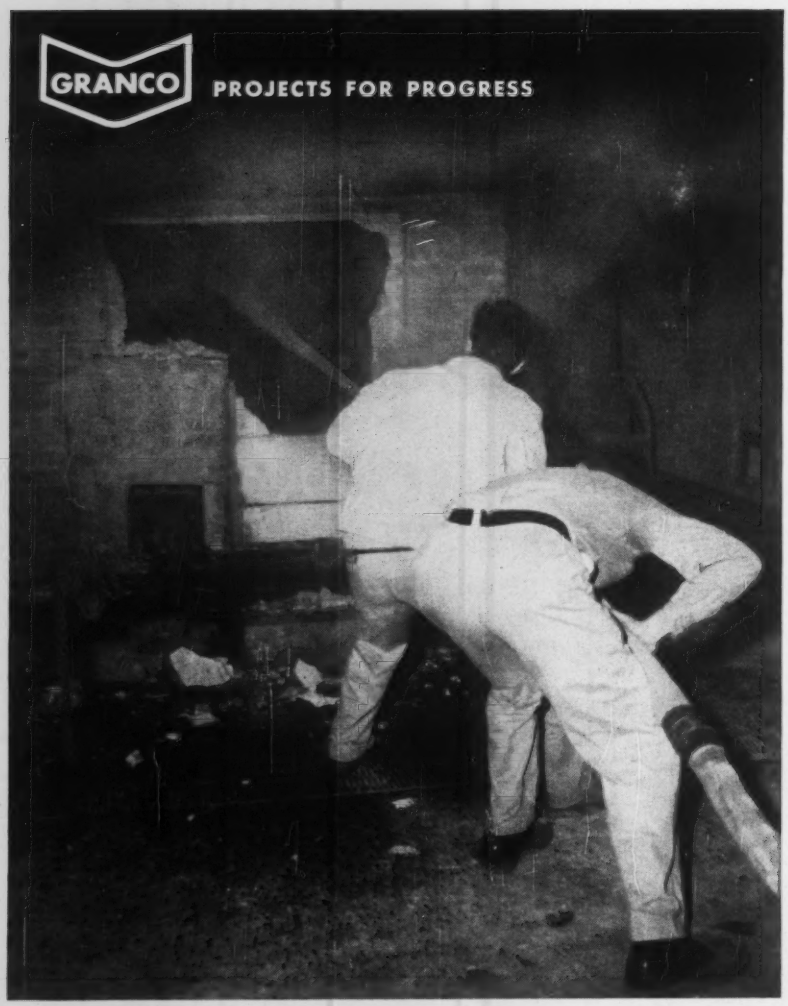

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The test was conducted by Underwriters Laboratories, Chicago, and sponsored jointly by Granco Steel Products Company and F. E. Schundler & Co., Inc.

During the test, flames reaching 1900° F. scorched the underside of the slab, yet floor-top temperatures rose only 325° F. No flames penetrated the system. Throughout the test period, the slab sustained a design load of 165 psf. No distortion occurred, even when it was cooled by water from a high-pressure fire hose. After cooling, it sustained a load of 235 psf.

Fireproofing was accomplished by spraying acoustical plaster on the underside of the electrical units.

For more data on this E/R Cofar test, drop us a card. We'd like the chance to tell you, in detail, how Granco research provides better products and dependable design data.

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detract from its appearance. Trees in grass plots at intersections also often cut down on visibility and constitute traffic hazards.

Grass plots are a nuisance to people alighting from or boarding automobiles from the sidewalk. So often they are either muddy, or the grass is wet, or they are covered with snow or slush. How much easier it is to alight from or board an automobile direct from the paved sidewalk.

If grass plots were eliminated the utilities could go underground as they are now beginning to do, or the poles could be placed in the sidewalk adjacent to the curb, or a two foot right-of-way could be provided for them between the sidewalk and the property line.

The place for trees and grass planting in urban areas is on abutting properties and not on the highway or street right-of-way. Over the years I have seen real battles between Highway Departments and the public over the matter of cutting down a few trees, and in too many cases the public, through misguided affection for trees in general, have won out and thwarted a greatly needed highway widening project. But by the same token I have never seen a case where a Highway Department won out. There are always enough trees left to keep those that were removed from being missed.

With the multi-billion dollar highway construction program now under way millions can be saved by the elimination of the historic grass plots in residential urban areas in addition to rendering the thoroughfare more useful. For a given width vehicular roadway, the additional cost of right-of-way, excavation, and drainage structures could be saved. To this could properly be added the capitalized annual cost of maintaining the grass plot. If the width of right-of-way is fixed, the usable roadway width could be increased by the width that would ordinarily be assigned to the two grass plots.

F. D. Sloan,
President
Sloan Const. Co., Inc.
Greenville, S. C.

CALENDAR

Highway Research Board, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 6-10.

National Association of Home Builders, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 19-24.

American Road Builders Association, annual meeting, Sheraton-Park Hotel, Washington, D. C., Jan. 20-23.

Associated Equipment Distributors, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Jan. 26-30.

American Society of Heating and Air-Conditioning Engineers, annual meeting, Penn-Sheraton Hotel, Pittsburgh, Pa., Jan. 27-29.

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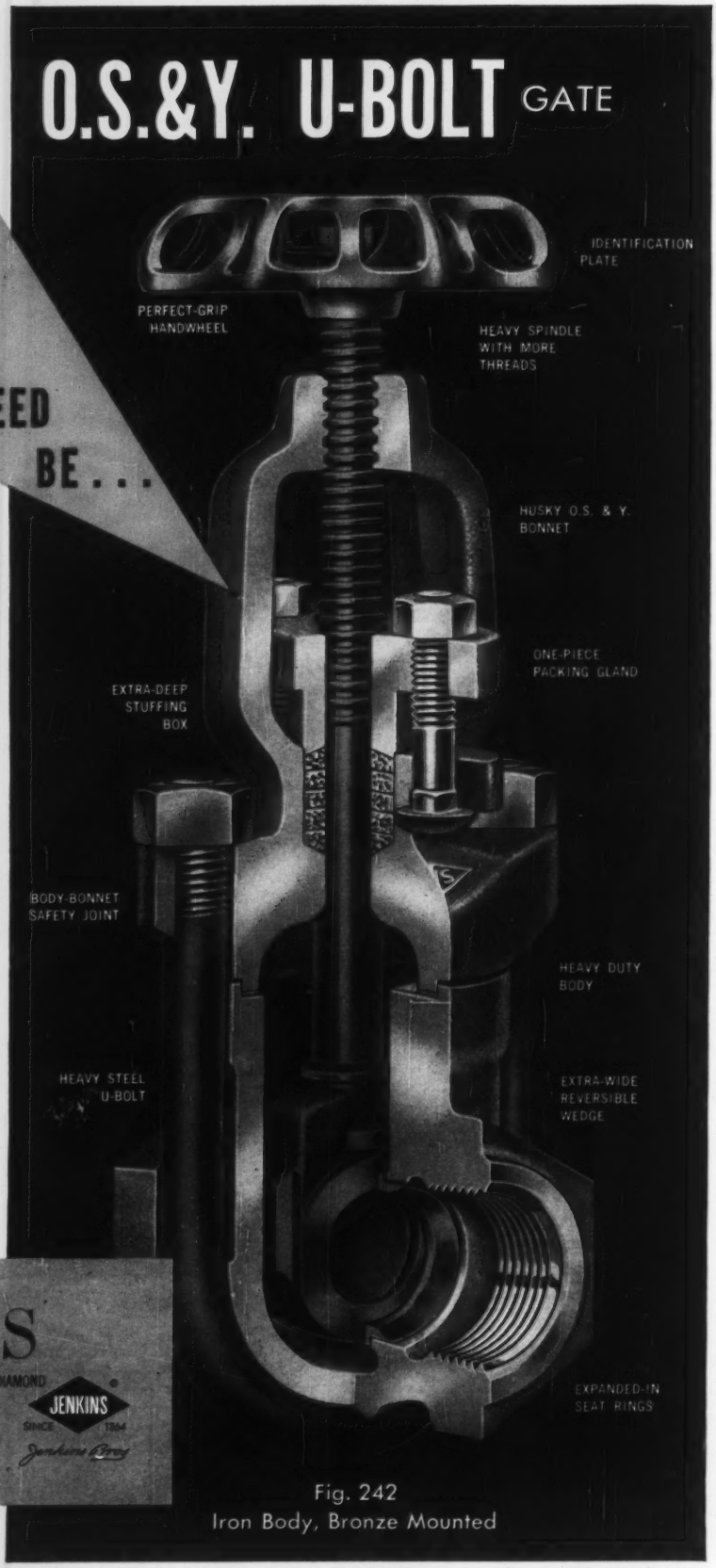

Fig. 242
Iron Body, Bronze Mounted

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THE CONSTRUCTION WEEK

BEAVERS AWARD—Next week's Beavers dinner in Los Angeles will honor nine construction industry leaders. For management, awards will go to J. C. Maguire of J. C. Maguire & Co. and L. S. Corey of Utah Construction Co.; for supervision, Ralph M. Conner of Morrison-Knudsen Co. and A. E. Graham of Pacific Bridge Co.; for engineering, Ross White of Brown & Root and H. E. Hedger of the Los Angeles County Flood Control District; for supply, R. G. LeTourneau and Guy C. Kiddoo of the First National Bank of Chicago. L. N. McClellan, chief engineer of the Bureau of Reclamation, gets a special award from the heavy construction man's organization.

HURON PIPELINE TO DETROIT AREA—The Southeast Michigan Water Authority, formed by Oakland and Macomb Counties north of Detroit, is getting very serious about a 53 mile, $131 million water supply pipeline tapping Lake Huron, judging from a report released last week. Bechtel Corp., San Francisco, the authority's consultant, describes the project as "feasible from an economic and engineering standpoint." And SMWA has retained financial and legal consultants. Capacity of the 96 in. line would be 396 mgd and a treatment plant would be located at its southern terminus.

WEST COAST WORLD FAIR?—Seattle might be the scene of a world fair in 1960. A fair program involving $42 million in construction has been recommended to the Washington State World Fair Commission by that body's Design Standards Advisory Board. The commission commended the board for the "magnificent concept" of the program and has asked the subordinate group to proceed with more detailed plans for the theme building, a $12 million exhibit hall. Other structures proposed for the fair include a $7.5 million pavilion for sports and other events; an $8 million pleasure pier extending into Puget Sound, with monorail or bridge connection to the exhibit building; a $1.5 million theater; and a concert hall, which would be converted at a cost of $2 million from the existing civic auditorium. Site development, in an area about a mile north of the central business district, would cost an estimated $5.7 million. State and city governments have made $15 million available for the fair and for a civic center.

CONNECTICUT PIKE OPENS—The Connecticut Turnpike, four years in the building (ENR Sept. 19, 1957, p. 56), was opened to traffic last week, with all but three miles of the 129 mile route completed. Two bridges remain to be constructed—across the Mianus and Byram rivers. Eight toll stations stretch along the highway from New York to Rhode Island. The average passenger car toll is 1.65 cents per mile, with a total toll charge of $2.10 for the entire route. The project cost $445 million.

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The performance you can expect from any roller bearing depends on its running accuracy and smoothness—and they depend on the control of internal dimensions and internal clearance. These vital internal dimensions include (1) concentricity of race diameters, (2) uniformity of roller diameters, and (3) squareness of all radial and axial surfaces, as shown at the right.

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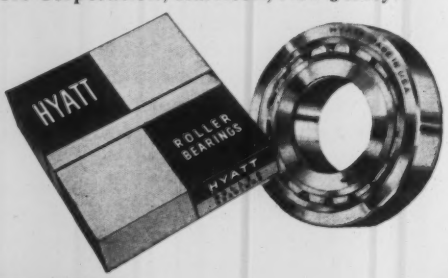

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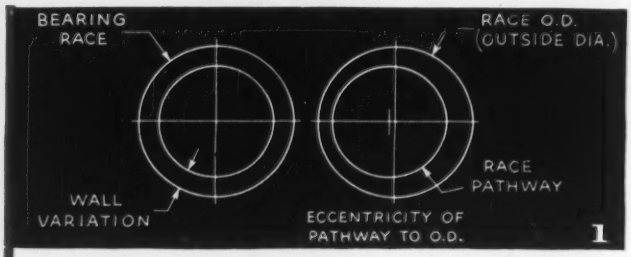
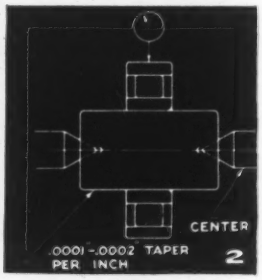
GM PARTS SALES



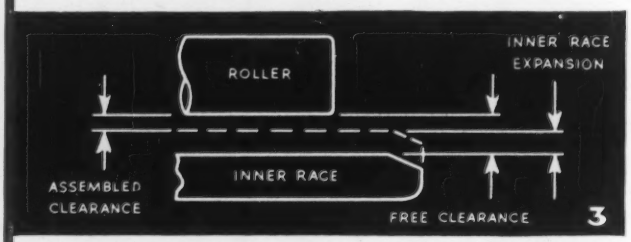
CONCENTRICITY OF RACE DIAMETERS

Concentricity of race diameters is usually defined in terms of wall variation (Figure 1), of the individual races, and radial run-out of the assembled bearing. The latter is generally a user's inspection where the bearing is mounted on an arbor, (Figure 2), having a slight taper (.0001" to .0002" on the diameter per inch of length) and the radial run-out indicated as shown by turning either the arbor or the outer race one revolution while the other member is held stationary and noting the difference between the minimum and maximum readings. Industry standards are available which indicate what values are acceptable.



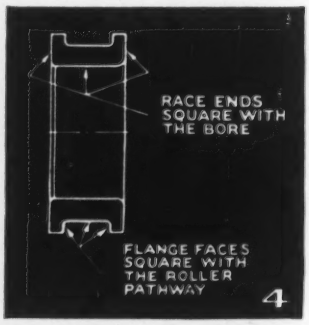
UNIFORMITY OF ROLLER DIAMETERS

Roller diameter uniformity, which is also necessary to running smoothness, is obtained by segregating the rollers into diameter variation classes of .00005", .0001" or .00015", depending on bearing size and quality grade and assembling only rollers of the same class into a given bearing. Rollers are then matched with races which are segregated in a similar manner in order to control the diameter over or under the rollers, which governs the internal clearance spread of the mounted bearing. (Figure 3 magnified)



SQUARENESS OF RACE AND ROLLER ENDS AND FLANGE FACES

Figure 4 indicates the race surfaces which must be square with each other within minute tolerances depending on the grade of the bearing. This is to prevent roller skewing with consequent heating and noisy operation. The roller ends must also be square with the diameter for the same reason. End square tolerances are usually less than .001" for the most frequently used sizes.



HYATT HY-ROLL BEARINGS FOR REPLACEMENT

WASHINGTON OBSERVER

- Commerce wins construction statistics
- Highway costs no surprise to Congress
- Controversy over federal-aid roads

● **Commerce officials say they've won out over the Labor Department in the years-long battle over construction statistics.** Timing of the Commerce take-over of BLS construction figures isn't sure, but should come soon.

The top-level decision has been agreed to by Secretary of Commerce Weeks, Labor Secretary Mitchell, and Budget Director Brundage. The idea has long been pushed by the Commerce Department. They recently moved to set up a separate Office of Construction Statistics in the Business and Defense Services Administration.

For the first time, construction men will have a single federal agency responsible for valuable figures, forecasts, and analyses on their industry. The main series to be moved from BLS are: housing starts, estimates of housing expenditures, federal construction figures, and a monthly series on building permits.

Estimating, analysis, publication, and programming of construction figures will all be done by Commerce officials. They expect that some of the BLS staff men will be transferred to the Commerce shop. As before, the actual data collection will continue to be done by the Census Bureau.

Commerce officials hope that a single agency will make it possible to get more funds from Congress to improve the figures. Government and industry economists have long agreed that the construction segment of the economy is perhaps the one needing the most improvement in statistical reporting. The hope is that it will now be less easy for congressmen in charge of money to pretend they're confused, to play one agency off against the other.

The decision to merge the BLS operation into Commerce was made after the budget document was closed out. Hence, the requests that go to Congress next week won't show a combined operation. Right now, the guessing is that the merger will be made effective through a Presidential re-organization plan. This means it would take effect within 60 days unless a majority of one house of Congress votes against it.

—

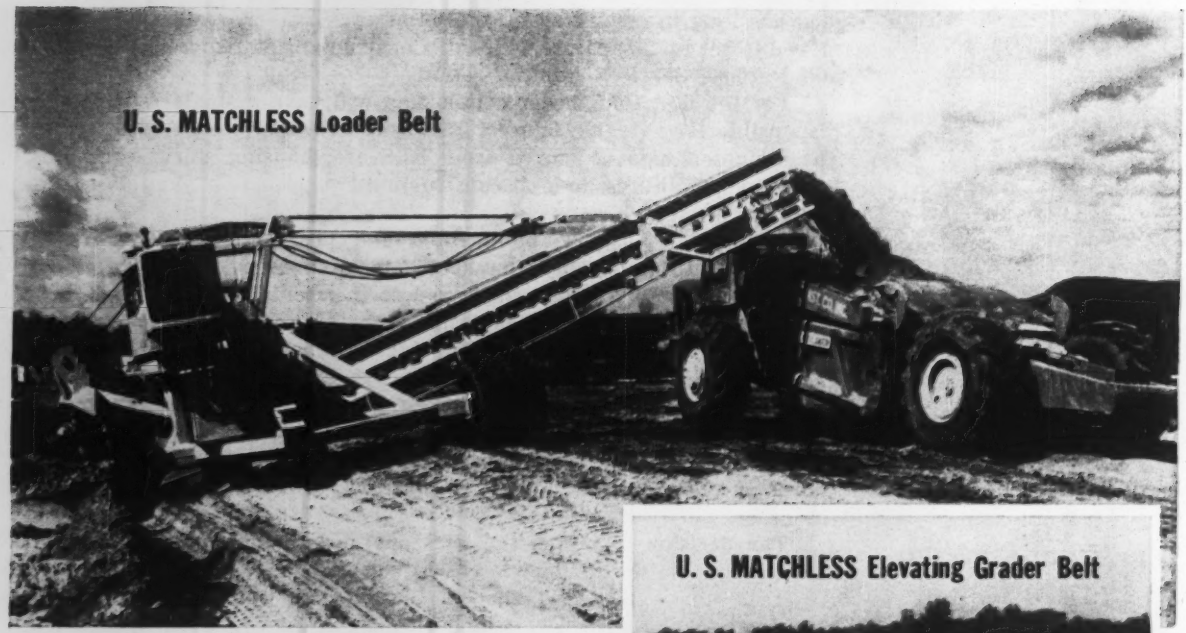
● **Highway leaders in Congress aren't surprised by the new 30% higher estimates on cost of completing the interstate system.** They think that construction is going ahead about as fast as need be; they'll take their time before doing anything drastic to push up the roadbuilding rate. Highway Administrator Tallamy told Congress last year that the 13 year program would now take 16 years to complete; the rise in cost from $27.5 billion to $37 billion or so was what he was talking about then.

—

● **A fight is on over stepping up the annual allocation to federal-aid highways other than the interstate net.** Under present law, the primary, secondary, and urban roads get first priority on the highway trust fund; and the understanding was that their allocation was to increase by $25 million every year from the present $875 million. Now the Administration would like to freeze the grants at $900 million. Congressman Fallon of the roads subcommittee wants the annual increase to continue.

CONVEYOR BELTS

HOW TO CARRY THE LOAD AND MAKE THE GRADE



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Federal Employees' Complaints

Federal employees are positive about where they think industry gives a better deal. Here's how they list their beefs:

- ☐ Take home pay
- ☐ Overtime pay
- ☐ Travel expense pay
- ☐ Advancement opportunity
- ☐ Encouragement of initiative
- ☐ Competence of top management
- ☐ Chance to use maximum skills
- ☐ Professional recognition

The executive branch is aware of the dollar sign on its manpower problem, but . . .

Will Congress Boost Engineers' Pay?

The executive branch of the federal government has become fully aware of the need to raise salaries of its scientific and engineering manpower. But as the new Congressional session begins, it remains very questionable that the lawmakers will do what's needed to raise government pay and thus avoid a developing manpower problem.

There is now general accord between the Administration and Congress on doing something to spur the nation's scientific efforts. It is agreed that something must be done to help educate more college students in the fields of science and engineering and to pump more money into research programs. There seems little question but that Congress will vote more money for such purposes.

But, pay increases for government-employed scientists and engineers will be harder to wrest from Congress. For one thing, the general category is broad, particularly in the field of science. Across-the-board pay boosts for these employees would be hard to justify without going all the way and hiking the pay of all government workers. This is definitely out for next year—except possibly for postal workers.

Trying to get pay raises for a selected group of employees, as the Administration wants, presents the problem of where to draw the line, and this may prove hard to do to the satisfaction of Congress.

• **Hopes for the future**—Gloomy as the prospects look for a complete legislative correction of the too-low federal engineering salary situation, the government, long plagued with inability to compete with industry for manpower, is launching the biggest program in its history to clear away administrative cobwebs so that it can attract and keep qualified personnel.

The Civil Service Commission has already ordered pay boosts within present scales for some 45,000 scientists and engineers. Increases of as much as $1,000 a year will be made with the overall cost to the government about $25 million a year ($20 million is for Department of Defense employees, the rest is spread among other federal agencies).

This is only a stop-gap measure. More far-reaching plans are in the mill to revamp the federal pay policies, both from a short-range and long-range standpoint.

In addition, the government has launched a series of studies that are designed to produce concrete answers on scientific and engineering manpower problems.

• One study, sponsored jointly by the National Science Foundation and the President's Committee on Scientists and Engineers is looking into the overall manpower needs of the nation. Its mission is to single out areas in which further studies are needed. Idea is to find the soft spots in utilizing manpower, then start collecting the necessary data so that realistic planning can be carried out.

• The Labor Department is making a study to get a good comparison of wage scales for government and non-government scientists and engineers.

• The Office of Education is polling the colleges and universities to get the number of junior-year students majoring in the various fields of science and mathematics. This will give them a two-year forecast on the availability of manpower in these fields. It will be used, too, in planning scholarship programs and other aids to education now in the mill.

• **Quality problem, too**—Generally, there are not enough qualified engineers and scientists to meet the country's needs. And, even if graduates in these fields should double between now and 1965, increased need for their services will keep them in short supply.

In this general situation of shortage, the federal government is hamstrung by low pay scales and small fringe benefits as compared with industry. The problem is becoming increasingly acute as the government tries to get or hold on to top personnel. Evidence includes the fact that although it employs roughly 10% of the nation's engineers and scientists, government is not able to recruit this percentage from university graduates. And, recruitments are coming more and more from the bottom half of graduating classes.

One government agency survey shows that 42% of supervisors rate the quality of their replacements about equal to that of the employees replaced, but 44% rate their incoming men as of a lower grade.

One estimate is that there are approximately 840,000 scientists and engineers in the country. That's all types and all branches. The government employs some 84,000 (of which 44,000 work for the Department of Defense).

. . . Prospects for federal pay raises

• **The reasons why**—To find out just why the government has trouble competing with industry for hard-to-get personnel, a Presidential advisory committee was set up in 1956. This committee was composed of top level officials from the Office of Defense Mobilization, Bureau of the Budget, National Advisory Committee for Aeronautics, Department of the Interior, Department of Labor, Department of Defense, National Science Foundation, Department of Agriculture, Department of Commerce, Atomic Energy Commission, Civil Service Commission, Department of Health, Education and Welfare, and the President's Advisory Committee on Personnel Management.

Here is what the committee reported to the President:

• Pay is one of the most important factors in getting and holding government personnel. It was cited most often by scientists and engineers as the reason why they left the government. Some 50% left for higher pay, only 25% for the sake of advancement.

• **The present pay picture**—The current hiring rate for government scientists and engineers on the recruitment level is $4,480. It is a good $1,000 below that paid by industry for graduates. The thousand-dollar pay difference exists until the engineer or scientist has 10 to 15 years experience. Then, the industry employee begins to outpace the government employee by even more.

The average salary for a scientist or engineer working for the government with 10 years experience is slightly over $7,000; for industry it is about $1,200 more. At 15 years experience, the government employee on the average makes $7,500, but his industry counterpart is earning close to $9,000. And, the gap widens with more years of experience.

Top level government salaries range from $12,500 to $19,000, but there are very few of these positions and similar jobs in industry are good for $20,000 to $30,000 and up.

The government, naturally, is not as flexible in its pay as industry is. Government employees by and large fit into civil service classification schedules with little leeway to hike pay on a merit basis. Instead, salary increases normally come on a seniority basis. In industry, outstanding work can be rewarded with higher pay.

Another past weakness has been that the government does not have any good system of checking on a continuing basis what industry is paying its talent.

• **Action recommended**—Backing up its findings, the President's advisory committee recommended a series of solutions to get the government's manpower program into high gear. Many of the recommendations require legislative action; others can be handled administratively. Reportedly, all have been farmed out to some particular agency to see that they are accomplished with periodic progress reports slated to be made to the President's adviser on personnel management, Rocco Sciliano.

The recommendations were broken down into those considered "urgent," needed within six months, "important," to be undertaken immediately, and "longer range."

Here are the "urgent" measures the committee recommended:

• Amend the Civil Service Act to permit higher pay for occupational groups in short supply, provide flexibility for individual ability, and eliminate restrictions of the number of super grade jobs. For this, legislation is required.

• Raise the starting salary for recruitment from GS-5 ($4,480) to GS-7 ($5,335). Legislation required.

• Pay the moving costs to first-duty stations. Legislation required.

• Take measures to insure the effective utilization of scientists and engineers—individual agencies to be charged with the primary responsibility for devising additional evaluation techniques and management practices. Administrative action required.

• Make a full study of federal pay policies. Administrative action required. Fringe benefits offered by the federal government are considered generally to be adequate, but short of those offered by industry. For example, the committee reported that the government has no health insurance program for employees comparable to that offered by industry. Its annual and sick leave, retirement and life insurance programs, however, were rated on a par with industry, and, in some cases, above industry programs.

Government falls short in paying employees for relocation costs, though, and, the committee recommended that payment for this be brought up to a realistic basis. In other areas such as incentive awards, training and education, and utilization, the committee found that the governmnt generally has adequate programs. But, in many cases they were not being fully used. It suggested wider publicity for them, generally to haul them out in the open.

—Present Federal Salaries—

The Engineer and Scientist Grades	*Top-of-Grade Pay Scale*
GS-5	$ 4,480
GS-7	5,335
GS-9	6,250
GS-10	6,825
GS-11	7,465
GS-12	8,645
GS-13	10,065
GS-14	11,395
GS-15	12,690
GS-16	13,760
GS-17	14,835
GS-18	16,000

Flood Routing Pays Off

$66 million of damage prevented at Chattanooga

The Tennessee Valley Authority's 24th annual report places a $66 million value on damage averted at Chattanooga by flood routing last January and February. This brought total damage prevented in TVA history to $132 million, compared to $184 million invested in TVA flood-control features.

Other report highlights were that power demand in the TVA area, exclusive of federal requirements that now consume half the system's output, is increasing at the rate of 750,000 kw a year, and that river traffic passed the 2 billion ton-mile mark for the first time during calendar year 1956, exceeding 1955 traffic by 23%.

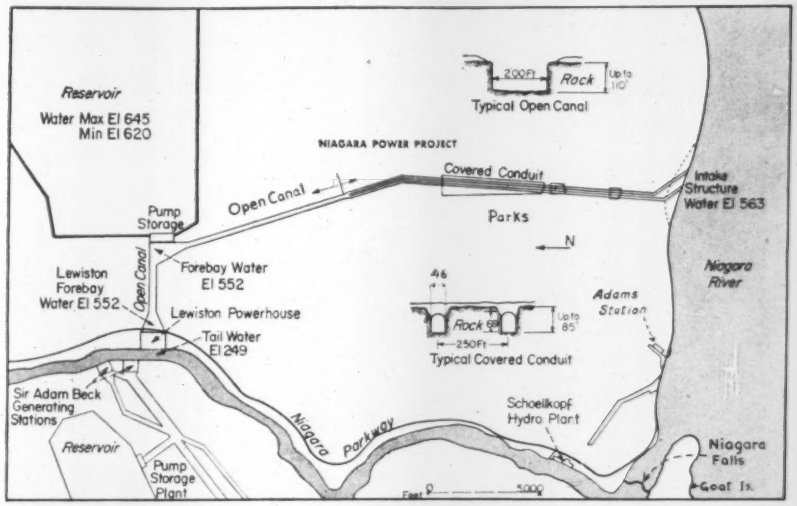
Current power construction on six steam units, including the 500,000 kw Widow's Creek addition, is being financed out of pocket from power sales. But the report indicates the importance of securing Congressional permission to issue revenue bonds for this purpose.

January-February rains, which caused about $15 million damage in the Ohio and Cumberland River Valleys, were held in check in the Tennessee Valley (ENR Feb. 7, 1957, p. 25). The flood was the largest in TVA history, and the second largest in Tennessee River recorded history. In three weeks beginning January 21, nearly 12 in. of rain fell on the entire watershed above Chattanooga.

For safety, river stage at Chattanooga was allowed to rise 2 ft above flood stage of 30 ft. Stage under natural conditions would have been 54 ft.

Power sales in fiscal 1957 (ending June 30) totaled 57 billion kwh, compared to 53.8 billion kwh the year before. Revenue amounted to $236 million and net income was $58.1 million on a total power system investment of $1,470 million (about 10 million kw). TVA has returned $240 million to the federal treasury.

Residents of the Tennessee Valley are paying an average 1.15 cents per kwh, compared to the national average of 2.58 cents.



OPEN CANAL between covered conduits and pump storage forebay is objected to by Federal Power Commisison staff engineers. They also call for extensive model studies.

Changes Proposed for Niagara

In a brief on the Niagara Power Project filed last week, staff engineers of the Federal Power Commission recommended that the entire waterway between intake and the pump storage plant (see drawing) be covered conduit to eliminate 7,000 ft of open canal. The staff also asked that the design of the covered conduits be checked by structural and hydraulic models because of what it termed an "untried" three-hinged concrete arch forming the roof of the conduit. Finally, the staff recommended to FPC that the Power Authority of the State of New York engage at least two independent consultants to check the hydraulic and structural design of the covered conduits.

PASNY replied this week, on Monday, in its final brief to FPC, by stating that none of the indictments of the open canal listed by the staff is "substantial or certain." The justification given for substituting covered conduit, said PASNY, cannot possibly be worth an additional $20.5 million in construction cost and $8.2 million of capitalized power loss due to loss of surge basin volume provided by the open canal.

The Power Authority dismissed the need for model studies by noting that the components of the proposed three-hinged concrete arch for the crown of the conduits has been used in bridges for many years.

Lastly, PASNY did yield on the consultant recommendation and announced in the brief that it had engaged the services of O. H. Ammann, partner of Ammann & Whitney, New York; Emil H. Praeger, partner of Praeger-Kavanaugh New York; and George F. Ferris, president of Raymond Concrete Pile Co., New York. These specialists will review the design by PASNY's general engineers, Uhl, Hall & Rich, Boston.

The FPC staff said that the 200 ft wide open canal section between the end of the covered conduits and the pump storage plant would: endanger children, restrict civil defense evacuation routes, disrupt effective road planning, partition the towns of Lewiston and Niagara, restrict planning of community facilities, and be a source of sabotage.

The authority felt it had demonstrated that an open canal properly landscaped and fenced is little different from an arterial expressway or parkway which separates one portion of a community from another. As long as adequate crossings are provided, said PASNY, there is no hardship to the community.

The staff gave no specifics in the brief for its recommendation of a model study of the covered conduit design. But it is understood that it has misgivings as to the structure's capability of withstanding differential movement of surrounding rock, or "rock squeeze." PASNY doubts the possibility of appreciable movement, but states that the use of the three-hinged arch makes the concrete horseshoe structure flexible.

FPC staff engineers also referred to the watertightness of the covered conduit in their model study recommendation. This, said the authority, overlooks the fact that the conduits are not intended to be watertight. They are to be constructed with weepholes leading through the conduit walls to eliminate exterior water pressure when the conduits are unwatered. As to hydraulics of the conduits, PASNY said a model study to indicate head loss and grade line along the waterways would not be feasible or justified. The head loss depends on surface roughness which cannot be produced by a model, claimed the authority. To indicate sudden load rejection, or surge, conditions would require a model of about ¼ mile length, it said.

State Debates Divided Anti-Pollution Functions

Frank statements by Maryland officials have spotlighted the problem of dual-agency control of pollution. In Maryland, as is the practice in a number of other states where the matter lies dormant, the State Health Department has authority over domestic sewage while a special commission has jurisdiction over industrial waste discharge into streams.

Recently, the State Board of Health stated unequivocally that the Water Pollution Control Commission should be abolished and its industrial waste program transferred to the board. The merger, it was felt, would eliminate ineffective operation in numerous overlapping areas and would save administrative funds.

For its part, the commission has not yet come up with a recommendation either way. Strangely, the commission, created in 1947, has authority to regulate pollution in all state streams, but has bowed to the prior authority of the Board of Health in the municipal field.

The question is currently before the Maryland Self-Survey Commission, charged with preparing a report on the proposed merger for consideration by the legislature that meets in February.

Flood Control Studied For Upper Cumberland

Army Engineers have begun a survey of the upper Cumberland River and its tributaries in southeast Kentucky. The survey will include studies of local flood protection at Corbin, Williamsburg, Harlan and Cumberland, Ky.

Sen. John Cooper of Kentucky expressed the hope that the projects can be built for less than $400,000 each to qualify under the liberalized Bush-McCormack law. This act permits Army Engineers to proceed with work without further authorization from Congress if the federal share of a complete project is less than $400,000.

"If floor control protection requirements established by law can be met," Senator Cooper said, "the building of such reservoirs will give a great lift to the upper Cumberland River Valley by providing a steady supply of water for industrial and recreational purposes."

Huge advance guide signs were part of field tests used to help come up with a modern and uniform signing system for the interstate network

Signs for Roads: Bigger, More Legible

Motorists who drive the interstate system won't run into confusing differences in highway signs as they wheel their vehicles across state lines. State highway officials are voting this month for adoption of a universal code that establishes identical standards of sign design for all parts of the mainline national network.

With the official interstate route marker adopted earlier (ENR Sept. 19, 1957, p. 25), the new standards will assure complete uniformity of signing practice on interstate highways, from coast to coast and border to border. Since the beginning of the interstate program, highway leaders have recognized that signing standards in use on older systems would not suffice for high-speed, high-density traffic on the new network of national expressways.

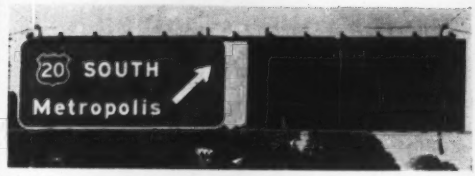
Bigger, more legible signs effectively displayed for quick reading and prompt driver response were an obvious requirement. A second necessity, officials realized, was uniform signing for the entire interstate system.

These essentials are covered in the new signing manual submitted to members of the American Association of State Highway Officials. Work on the sign standards has been under way for a year. The final draft now being voted on has benefited from comments by the states on earlier versions.

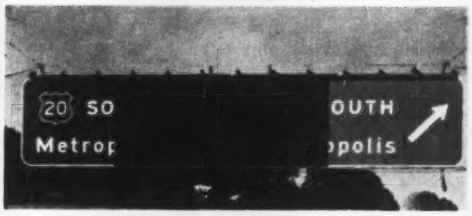
Earlier drafts spelled out most of the requirements except letter size, background color and reflectorization for the big guide signs.

These questions were settled by a field test that the Bureau of Public Roads conducted in early November

VARIOUS COMBINATIONS OF COLORS and reflectorization were also tested by assortment of advance exit guide signs.



Sign done in color . . .



. . . was covered by sliding panel . . .

. . . exposing different color in order to obtain a check on driver reaction.

near Washington, D. C. With the help of a typical cross-section of some 220 drivers who participated in testing various signs, BPR researchers came to conclusions that coincided generally with judgments and preferences registered by the highway departments in commenting on tentative standards for the manual.

As a result of the tests, the background color of the guide signs is to be dark green, preferably reflectorized, but with an opaque surface permitted. Dimensions of such signs are determined by the space required for the message—in the large lettering specified. The signs tested were 16x20 ft for roadside installation and 8x18 ft for overhead mounting.

All guide signs are to have white letters, symbols and borders, self-illuminated or reflectorized or both. Roadside signs will be illuminated where necessary, but illumination of overhead signs is required except in rare instances. Tube lighting is recommended for illumination.

Similar high standards are specified for all other interstate signs. Minimum size of warning and regulatory signs, for example, is increased to 48 in. And the manual includes details and sketches to show the proper placement and spacing of all signs.

An AASHO committee composed of Federal Highway Administrator Bertram D. Tallamy, executive secretary A. E. Johnson and traffic committee chairman M. L. Shadburn has been responsible for carrying the manual through to its final form.

States Search for Road Funds

More money still needed for state shares in interstate highway program; gas tax suffers in some states

How to continue providing sufficient funds to meet the states' share of the cost of the interstate highway program continued to take the spotlight as a great state worry last week.

Oddly enough, the events were on the negative side in many states—where actions to knock out, or redistribute, tax revenues were afoot.

For instance, Georgia's Gov. Marvin Griffin suggested repeal of a constitutional amendment that now requires allocation of all gasoline and motor vehicle tax revenues to the highway department. The problem in Georgia, said the governor, is that the state's constitution requires that the road bureau's appropriation of funds each year must equal net collections from user tax sources. And, added the governor, the department can't use all the money (about $87 million).

In Kansas, it appeared likely that the state legislative council would make no recommendation to the 1958 legislature on a 1 cent gas tax increase, particularly after a postcard survey conducted by Gov. George Docking indicated motorists were against it. Oklahoma knocked out a 1 cent emergency tax on gasoline December 24.

And Ohio could see no end to its four-year-long fight to collect an axle-mile tax from truckers using the state's highway network. Although the state now figures that tax collections should add up to about $14 million, it can't touch a penny of the money, since trucking groups have announced they'll take the matter to the U. S. Supreme Court for decision.

• **Increases due**—In several states, user-tax increases apparently were due.

In Maryland, for example, the state legislative council reported that a 1 cent tax increase probably would be asked of the next legislature, to meet rising costs of highway construction. In Missouri, the St. Louis County League of Municipalities proposed a 2 cent gas tax increase—provided that up to 1½ cents be returned to the counties.

West Virginia was told by State Road Commissioner P. C. Graney that road needs over the next 10 years would require about $50 million in new revenues. And in Kansas, there is serious consideration of reviving the state's ton-mile tax on trucks (repealed in 1955) to bring in more money.

• **Other moves**—In other highway developments during the week, these were of significance:

Idaho's Department of Highways and the University of Idaho agreed to work together to study the land value, land use and economic effect of highway development in the public domain.

And the Kentucky Highway Department announced that it would begin a much accelerated right-of-way acquisition program, using its present staff of 65 appraisers, and training others on the job.

Municipal Airports Are Slated for Expansion

In actions taken last week, municipal airports in at least six states were marked for improvements ranging in cost from several million dollars to several thousand.

Biggest program announced was at Oklahoma City, where voters December 17 overwhelmingly approved a $7.5 million bond issue that will be the city's share of a planned $13.5 million program for Will Rogers and Tulakes Airports. Of the total amount, $11.5 million will be spent at the Rogers base, for lengthening runways, purchase of additional land and construction of new buildings. At Tulakes, runways will be strengthened and lengthened, a terminal building will be built, and additional parking areas and approach zones will be obtained.

Possibly the most significant development was the announcement by the Massachusetts' State Airport Management Board that private capital will participate—for the first time—in construction of a $500,000 central freight terminal at Logan Airport, in Boston.

• **Other developments** — Elsewhere, these airport items were in the news:

Lester C. Andrews, chief engineer of the Michigan State Department of Aeronautics, said that as 1957 ended, the state had 53 airport projects on its books—28 in construction stages—for a total of $5.7 million on such work.

In Ohio, a new program for improvement of Cleveland's Lakefront Airport—calling for an immediate start on plans for expansion of the port, and a feasibility survey of a projected $12 million outlay on the port—was submitted to the city council.

And in Pennsylvania, the Allegheny County (Pittsburgh) board created an eight-man Allegheny County Port Authority to "finance and construct air, land and water facilities" for the Pittsburgh area. The new authority will be self-supporting.

Columbia River

Diversion into Fraser pushed with new vigor

In a statement before Parliament, Canada's top governmental power planner, Gen. A. G. L. McNaughton, put new vigor behind the federal plan to divert a portion of upper Columbia River water into the all-Canadian Fraser and to build a series of low head power dams on the latter stream (ENR Aug. 23, 1956, p. 21).

Harnessing the Fraser (feasible only by firming up low flow) is the only way to provide cheap power to British Columbia and each day's delay increases the chances that the province's power resources would come under control of the U.S., he said. Tremendous pressure is building up in the U.S. to permit U.S.-financed dams on the Canadian Columbia to provide water for the lower Columbia, he stated.

As to Fraser River fish, the general said the salmon industry must take a backseat to hydrodevelopment of the Fraser.

General McNaughton's statements are considered indicative of the breach that is widening between the U.S. and Canada over ultimate development of the Columbia River.

In the U.S. Douglas McKay, head of the U.S. section of the International Joint Commission, made little of the plans of his IJC counterpart, General McNaughton, to divert the Columbia into the Fraser, saying the scheme would probably come to nothing.

Though the general's views received support from most power interests in British Columbia, the fishing industry and the provincial government are opposed to many aspects of the diversion scheme. The former claims that dams on the Fraser would wreck the province's $45 million-a-year salmon industry. And officials of the provincial government are known to prefer development of the Columbia in conjunction with the U.S. before the Fraser is dammed, (presumably utilizing water stored on the upper Fraser).

State Seeks Lowered Height For Missouri River Bridge

Planning a $7 million bridge across the Missouri River at Bismarck, the North Dakota Highway Department has asked the Corps of Engineers for permission to change the specified clearance from 38 ft to 19 ft. The department contends that present clearances are based on needs of 19th-century river packets.

A lower bridge would mean a 150 ft shorter structure, less fill for approaches, shorter piers and lighter foundations. The action is considered important because under the interstate program at least six bridges will be built across the Missouri. Likely sites in addition to the Bismarck bridge are Kansas City, Omaha, Chamberlain and Pierre, South Dakota.

Savings of more than $4 million can be realized according to bridge engineer J. R. Kirby of the North Dakota Highway Department.

Enoch R. Needles

Needles Takes Office As President of EJC

Enoch R. Needles takes over the presidency of Engineers Joint Council this week, succeeding Joseph W. Barker at a meeting of the EJC Board of Directors.

Mr. Needles, senior partner in Howard, Needles, Tammen & Bergendoff, was president of the American Society of Civil Engineers in 1955-56. He has since served on the board of directors and the executive committee of EJC, Federation of Engineering Societies that have a total membership close to a quarter-million engineers.

In assuming the EJC presidency, Mr. Needles is joined by a newly elected vice-president, O. B. J. Fraser, metallurgical engineer and assistant manager of the Development and Research Division of International Nickel Company, Inc. Each will serve for one year.

Presidency of EJC has been rotated among engineers from the major professional branches over the years since its establishment in its present form in 1949. Civil engineers preceding Enoch Needles have been: R. E. Doughedy in 1949 and Thorndike Saville for the two years 1954 and 1955.

In addition to leading ASCE in 1956, Mr. Needles has been president of the American Institute of Consulting Engineers and the American Road Builders Association. His consulting firm has been a leader in the tollroad, bridge and state highway field for many years.

Space Problem Solved

Reservoir builder foils recalcitrant landowner

One way for a private firm to deal with a reluctant landowner in the middle of a prospective reservoir site is to surround him with water. But Columbia-Southern Chemical Corp. found a much neater method.

The company, whose Barberton, Ohio, plant is the chief contributor of salt to the Muskingum River, and to the main stem Ohio River for that matter, planned a $1 million lagoon that would impound the chloride until sufficient dilution water was available in the river. But one small landowner in the 283 acre reservoir site demanded an exceptionally high price.

Columbia-Southern then offered the million dollars in land and money to a local municipality, Summit County, if it would build and operate the proposed facilities. The county's power of eminent domain could be employed to thwart the holdout landowner.

After being approved by Ohio's Governor William O'Neill, the Ohio Water Pollution Board, the State Health Department and the county engineer, Columbia-Southern's offer was accepted recently by the Summit County Commissioners. The chemical company's offer includes all funds necessary for operation and maintenance of the holdback lagoon as well as payments to two municipalities in lieu of taxes.

The lagoon will have capacity for six month's discharge from the Columbia-Southern plant. It is designed to reduce the existing 600 ppm plus chloride content of the Muskingum to less than 250 ppm. It also will reduce, by more than half, the total chloride load in the mainstem Ohio at lowest flow periods (ENR July 18, 1957, p. 30).

Prize Solar Heated Home To Be Built in Arizona

Work on Arizona's prize-winning solar-heated home, which eventually also will be solar-cooled, started December 20 with completion planned in 90 days.

The $25,000 home will be constructed from plans by Peter R. Lee of Minneapolis. It will function through the sun's heat warming a series of water pipes, the hot water being stored in tanks. Solar rays will be trapped by a series of mobile louvers, electronically controlled to move with the sun and adjust with the seasons.

The plans were the result of a contest sponsored by the Association for Applied Solar Energy, and construction has been undertaken as a research venture by the Phoenix Association of Home Builders.

Arizona Authorizes Another Colorado Water Use Study

Arizona has authorized another long look at how to best make use of the Colorado River water and power it is entitled to. Harza Engineering Co., Chicago, will study methods of diverting water from the Colorado into central Arizona for irrigation and water supply purposes. The last comprehensive state water survey was made in 1940.

Routes that have been suggested previously in Bureau of Reclamation and state studies include: a 150 mile tunnel from Marble Canyon under the San Francisco Peaks to the Verde River near Camp Verde; an 80 mile tunnel and a long canal from proposed Bridge Canyon Dam on the Colorado (between Grand Coulee and Glen Canyon) to Granite Reef dam on the Verde River above Phoenix; and one that would use power from Bridge Canyon Dam to overcome the 920 ft of head existing between Lake Havasu above Parker Dam on the lower Colorado and Granite Reef Dam.

Bridge Canyon Dam is now the subject of a dispute between Arizona and Los Angeles. The Los Angeles Department of Water & Power recently applied to the Federal Power Commission for a license to construct this dam (ENR July 25, p. 27).

Land-Purchase Fee Fight Delays Expressway Project

The U. S. Bureau of Public Roads has rejected a flat-fee plan proposed for paying buyers for their services in acquiring right-of-way for the extension of the North-South Expressway in Louisville. Because of this disagreement, further delay in the project is seen as certain.

A sliding-scale schedule of fees was proposed as an alternative to the rejected plan. Buyers would be paid 5% for the purchase of any parcel costing $500 or less. On property costing more than $500, the buyer would get a flat fee plus a percentage. The amount would increase with the higher priced lots and the percentage would decrease. Under this plan the top fee would be $850 plus ½% on land bought for over $200,000.

Under the original plan, five buyers were appointed by the highway department in consultation with the city and the buyers were to receive $400 per parcel for all land purchased. With some 350 parcels involved, the real estate brokers could be paid a total of $140,000.

A spokesman for the buyers has said that the new plan will have to be examined before they can say whether they will accept it.

News Briefs

• **Army to build A-plant**—The Army has announced that its first production nuclear power plant will be constructed in Fort Greely, Alaska, to generate both electricity and heat for the post. The plant will be modeled after the prototype built at Fort Belvoir, Va. (ENR Jul. 12, 1956, p. 45), whose parts can be flown in and assembled.

• **Radiation control**—The Connecticut State Department of Health has incorporated regulations governing radiation sources in the state's sanitary code under the title, "Radiation Sources and Radioactive Materials." The department has been monitoring radioactivity in the state's watercourses for several years.

• **Fluorine air pollution**—U. S. Steel's Geneva Works at Provo, Utah, have been equipped with a $9 million air pollution control system that prevents fluorine from escaping to the atmosphere with waste gases. Utah iron ore contains unusually high amounts of fluorides. The system is claimed to remove 90% of the gaseous fluorine by exposing it to lime dust to form precipitable particles.

• **Potomac River treatment**—The first municipal treatment plant on the upper Potomac River was dedicated at Cumberland, Md., recently. The plant, built at a cost of $2 million, will serve the city of Cumberland and surrounding communities.

• **$10 million sewerage plan**—Portland, Me., has been advised by consultants that a network of sewers, pumping stations and a treatment plant to halt pollution of the city's inlet waters would cost $10 million. Dredging some beds of sludge would add another $1.8 million to the project.

• **Automatic parking garage**—The New York City Planning Commission's approval was sought this week for a $700,000 project described by its developers as a completely automatic parking garage. One man, the cashier, will operate the 8 story, 256 car facility. On arrival of a car at street level, he will withdraw a key from a control panel and hand it to the driver as a receipt. Removal of the key will set in motion a fork-lift that will slide beneath the wheels in floor grooves and transport the vehicle to a parking position. Speed Park, Inc., is the developer. Columbia University will be the owner.

• **Rail removal postponed**—The $35 million job of removing the tracks from San Francisco-Oakland Bay Bridge and remodeling the structure so that automobiles, trucks and buses can use the rail space has been postponed. Conversion (ENR May 9, 1957, p. 28) was put off when the California Public Utilities Commission decided to reopen the question of whether the Trans-Bay Transit system should be allowed to switch from trains to buses.

• **Biggest blast**—More than 3 million cu yd of rock were wrenched from a cliff last week by an explosion of 2.1 million lb of dynamite and nitrate fertilizer, making it an entry in the record book of nonatomic explosions. The "shot" was the fourth in a series of big blasts to produce fill for the causeway being built across Great Salt Lake.

• **Roadbuilders to fight**—The Tennessee Road Builders Association recently pledged support for a constitutional change prohibiting diversion of tax revenues to non-highway purposes. Fate of the measure will be decided in a general election this fall. A TRBA spokesman claims the state is now diverting $5-10 million annually from highway funds, spending it for non-highway purposes.

• **New Cincinnati garage**—The 540-car Fourth Street Garage in Cincinnati, recently acquired and remodeled at a cost of $2 million, is proving a financial nightmare. Despite all the talk about inadequate parking facilities, on the first day of business only 14 parkers used the garage. The following day saw 15 customers. Business hasn't improved since, so both the garage operators and the city are asking for a reduction in the present rates.

• **Philadelphia trolleys**—Philadelphia is continuing to improve midtown and outlying traffic movement. Last week the Market Street trolleys were replaced with buses. Both buses and trolleys were eliminated from four downtown north-southbound streets. Further plans announced by the city and the Philadelphia Transportation Co., include consolidation of existing bus routes, addition of more buses to other lines, and increased shuttle service to and from neighborhood business areas.

• **Construction plans ready**—Asking substructure bids this month, the Delaware River Joint Toll Bridge Commission hopes to begin construction of its $6.4 million bridge across the Delaware River at Yardley, Pa., by late spring. Superstructure bids will be sought in March. The federal government will pay half the construction cost, with Pennsylvania and New Jersey sharing the balance.

EUCLID "TWINS"

whip tough conditions on Sugden & Sivier's 1,700,000 yd. road job

Two TS-24 "Eucs" move 320 yards per hour on 3300' haul with 3% adverse grade and 16 to 20% rolling resistance

On a 1,700,000 yd. highway relocation job near Jackson, Michigan, Sugden & Sivier encountered the toughest dirt conditions in their experience. Yet, they're ahead of the earthmoving schedule—*chiefly because of the performance of their six Euclid Twin-Power Scrapers* (two 24-yd. struck capacity and four with 18 yd. struck capacity).

Water-logged sand pockets in the clay base made loading and hauling slow and difficult. In spite of the unfavorable conditions, the all-wheel drive "Twins" bulled their way through on wet, spongy, rutted haul roads . . . and averaged 1500-1600 yards per unit per 10-hour shift.

On all kinds of jobs, in every kind of dirt, on all lengths of hauls, Euclid "Twins" are outproducing other scrapers by a wide margin—the all important profit margin. More and more successful bidders are figuring their estimates on "Twin" productive capacity. See your Euclid dealer soon for additional details and proof that ***Euclids are your best investment.***

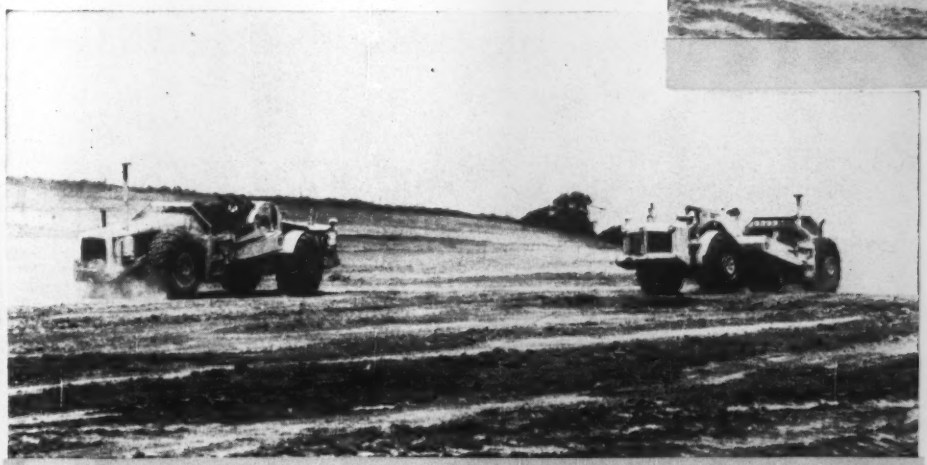
EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Charles T. Sugden says,
"Euclid manufactures the best earthmoving equipment available today."

"Downtime is negligible on the Twins"

That's the opinion of Mr. Sugden, a 34-year veteran in earthmoving. And, there's good reason for the high availability of "Eucs". Strength and durability are designed in and built in to every unit as a result of over 25 years of experience in building heavy construction equipment. Major components are job-proved over many years—and they're easily accessible for quick service or replacement to save downtime.

Independent hydraulic control of apron and ejector on the big "Twin" assures instant response to simple control levers . . . permits fast, controlled spreading of the load . . . eliminates expense and downtime caused by cable breakage. Interchangeable, reversible four-section cutting edge can be adjusted for best loading in various materials.



With 300 h.p. engine in the tractor and 218 h.p. behind the bowl, separate Torqmatic Drive and NoSpin differential for each drive axle, the TS-24 "Twin" cuts cycle times even under the most adverse job conditions.

Euclid "Twins" are moving the cheapest dirt!

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

Concrete pipe sections 13½ ft in dia, 16 ft long, weighing 68 tons, are seated by "Pipemobile"

New Rig

SELF-PROPELLED RIG was developed by American Pipe and Construction Co. for $16 million Colorado River Aqueduct contract.

Lays Heaviest Precast Pipe

A newly developed machine is laying some of the heaviest precast concrete pipe in construction history as one phase of bringing the Colorado River Aqueduct up to full capacity. The rig, called a "Pipemobile," was developed by the American Pipe and Construction Co.—holder of two contracts totaling nearly $16 million.

The American Pipe work, being done for the Metropolitan Water District of Southern California, consists of installing 47 separate siphons totaling 12 miles in length along 183 miles of the 240 mile aqueduct. These siphons were constructed to half capacity in 1941 (see p. 36). The new parallel siphon barrels include 13 and 13½ ft dia pipe laid in 16 ft long sections weighing 63 or 68 tons.

Other noteworthy aspects of this work include:

- Downhill laying of the heavy pipe sections on grades that exceed 30 deg.
- A pair of heavy duty side boom tractors that move pipe in the casting yard from casting to storage position and tip the pipe from vertical to horizontal position.
- Pipe transported from casting yard to jobsite by self loading and unloading double truck trailer units.

TRACTORS GIVE EXTRA PUSH for pipe laying on steep slopes (this one is 29 deg). Pipemobile lays pipe downhill—instead of up—on some steep sections.

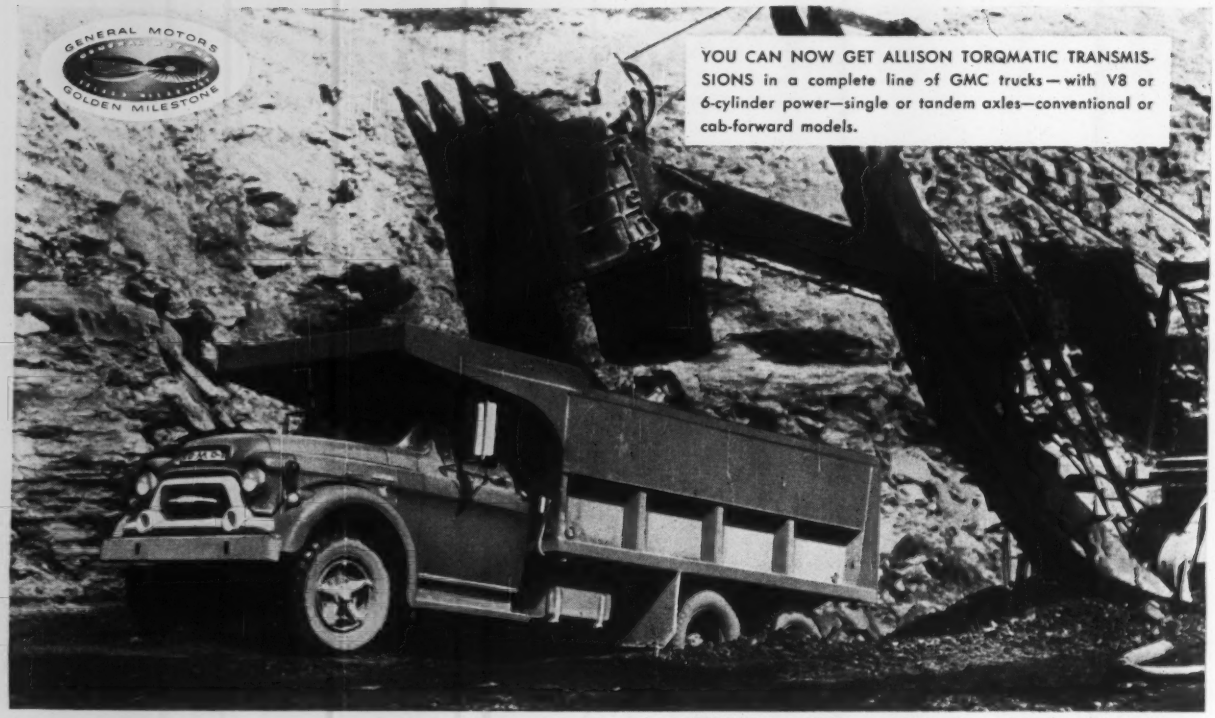
• **Alternate bids**—On bid calls a year ago, MWD assured maximum competition by dividing the 47 siphons into 10 schedules, each of which could have been bid as a separate job or in combination with others.

MWD further opened the bidding to competition by accepting bids on each of three types of construction: Precast pipe, monolithic or poured-in-place construction and mortar coated steel pipe. In the original construction, only one siphon was precast pipe—all the rest were poured in place. On the recent bidding no bids were submitted on steel pipe.

At the first bid opening for five schedules, on December 13, 1956, American Pipe & Construction Co. was low on the total of all five at $8.5 million (AP&C actually wasn't low on every one of the five schedules, but because it would not take some of the lesser schedules without taking the major portions, the AP&C offer proved to be the most advantageous combination).

At the second bid opening on January 16, for the remaining five schedules, R. V. Lloyd & Co. was low bidder on all five schedules for $7.3 million. American Pipe & Construc-

TWELVE MILES OF SIPHON are being constructed in 47 locations to bring 240 mile aqueduct to full capacity. Each siphon is parallel to similar size barrel laid in 1941.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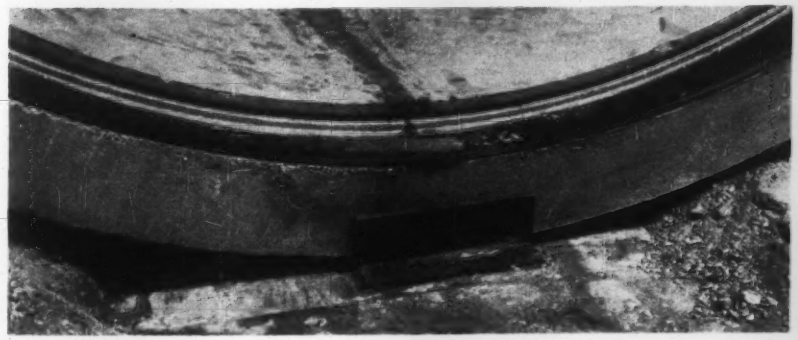
GMC—America's Ablest Trucks

. . . Downhill pipelaying employs steel stops



PIPE IS ANCHORED on steep slopes by steel angle welded to plate which is held in previously cast concrete block. Angle is welded after pipe has been seated.

tion did not bid but later acquired all of the low bidder's rights. Result is that both contracts are now being constructed as if the entire 10 schedule job was awarded on one bid.

Because of the proximity of the first barrel of each of the siphons, restrictions aimed at protecting the existing works were imposed on the current construction. No loads of any sort can be placed on the siphons in place. This means that none of the trench excavation can be deposited on the siphons, no rigs can operate from the existing-siphon side of the excavation, and no loads can be transported over the existing siphons without bridging over them.

These requirements indirectly led to development of the Pipemobile. It was impractical to have a pipe-laying crane occupying the same ditch bank as already was occupied by excavation from the trench. Thus, AP&C Co. officials figured they should devise some means of placing the pipe from within the trench. This, of course, is an oversimplification. There were many other factors involved such as the sandy or granular nature of the ground that resulted in relatively flat side slopes of the pipe trench.

• **Pipemobile operation**—The Pipemobile is a machine that can insert itself into a pipe section, pick it up, move it from a trench-side storage area into position and seat the pipe joint. To permit it to enter and leave the pipe without damaging the steel joint ring the Pipemobile has two sets of front wheels arranged in tandem. As the rig enters a pipe section, there is no load on the first of the wheels. Load is taken by this front wheel as the second set of front wheels is retracted and moved into the pipe. Load then is transferred back to the second set of wheels. The process is repeated as the front end of the Pipemobile passes out of the pipe.

The front wheel is a single rubber-tired wheel. The second set of front wheels is a double-tired affair. Reason for this is that the front wheel is used only for entering and leaving the pipe, whereas the second set of front wheels is used for moving the pipe when greater control is needed and loads are heavier.

There are two sets of two wheels on the back end of the Pipemobile to provide stability during traveling and the support the heavy machinery load on the rear end.

The Pipemobile is powered by a 225 hp diesel engine driving a 250 kva dc generator. Each set of wheels is driven by a 50 hp electric motor connected to the wheels through a gear reducer and chain drive. Speed of travel is adjusted by changing the output voltage of the main generator. Maximum speed of the rig is about 2½ mph.

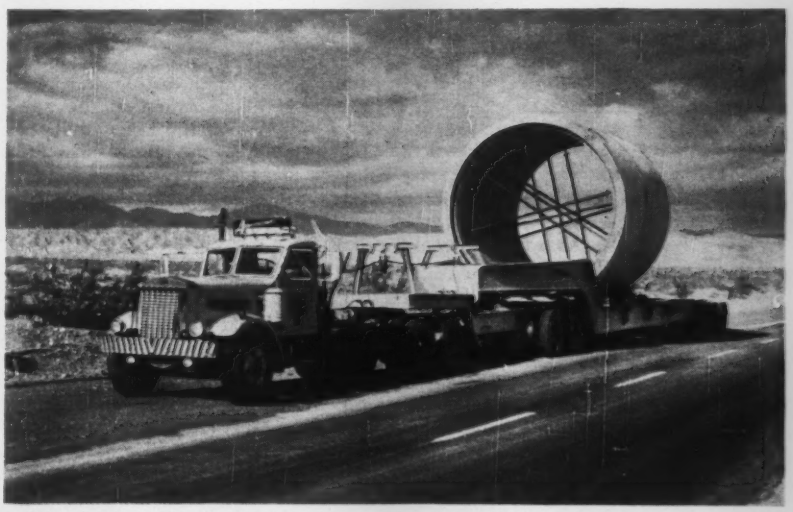
The machine is steered by an operator who rides on the front end and controls the front wheels, which can be turned through a 180 deg angle. For shallow turns there will, of course, be some slippage in the rear wheels since all are powered uniformly. For sharp turns, the rear wheels also can be turned up to 30 deg in each direction.

To accomplish this, the front end operator signals by an intercom system to the main operator located at the rear of the Pipemobile. If necessary, any one of the set of wheels can be disconnected for turning purposes. Wheels are steered by hydraulic motors with hydraulic power developed by a pump driven by the main diesel engine.

Because the 13 and 13½ in. thick pipe is subject to comparatively low water head and high external load from backfill, reinforcing is concentrated near the inside surface at both the crown and the invert. But on the sides of the pipe, reinforcing is provided near both inside and outside surfaces. This means that a pipe section cannot simply be lifted from the inside by bearing against the arch of the pipe.

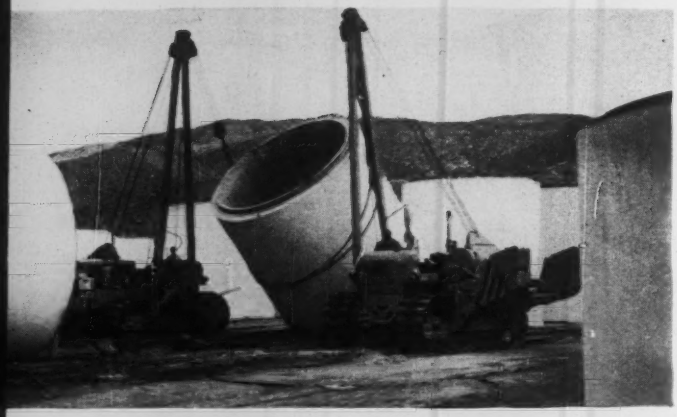
The Pipemobile has hydraulically operated horizontal struts that exert pressure against the sides of the pipe to keep the lifting load distributed. After these horizontal struts are firmly in position, vertical hydraulic rams lift the pipe off the ground. The horizontal and vertical hydraulic rams also permit close adjustment in seating the pipe joint.

• **Laying downhill**—All of the 47 siphons slope steeply at each end to connect with existing full-capacity elements of the aqueduct on hydraulic grade line. And some of the siphons that cross irregular terrain include substantial slopes between the end sections. Since the Pipemobile operates



PIPE IS HAULED BY TRUCK to storage area adjacent to trench. Heavy rig has to move on 183 miles of specially constructed road, here a shoulder of state highway.

. . . At the casting plant heavy side boom tractors move pipe



SIDE-BOOM TRACTORS tip pipe section to horizontal position. Teamwork by these tractors in moving the heavy sections around pipe plant has facilitated pipe casting work.

HEAVY STEEL CAGES reinforce the pipe. Cages are assembled at a special plant and truck hauled to the casting plant.

on the ditch bottom, pipe laying must proceed in continuous sequence from one end of a siphon to the other. Consequently, it is not feasible to place the steeply sloping end sections uphill in all cases as is done in crane or gantry pipelaying.

Laying pipe downhill on slopes as high as 30 deg presents two complications. The heavy pipe sections must be anchored in place as they are laid to keep them from sliding down the slope. And additional power must be provided to the Pipemobile so the machine can lift the heavy pipe sections as well as its own weight (80 tons) up the slope.

On slopes in excess of 10 deg, each section of pipe is anchored by a 4x4x½ in. angle welded to a steel plate anchored in a concrete block in the ground. These anchor blocks are cast before pipe laying begins; the steel angles are welded in place after the pipe has been seated and before the Pipemobile is removed.

Extra power is provided in two ways. The Pipemobile has a fourth 50 hp electric motor (in addition to the three that drive the front and rear wheels) that powers a winch. When the construction schedule and the terrain will permit, an anchor block is cast at the top of the slope. Using this anchor block and its own winch, the Pipemobile can pull itself up the slope. However, in many cases, extra power must come from additional pieces of construction equipment such as a torque-converter-equipped tractor acting through a steel mast. As a precaution on some of the steepest work, a sling around the pipe is connected to a crane winch on top of the slope and a second heavy tractor pushes from below.

On a very few slopes where ground condition is so poor that the concrete anchors might not hold and the Pipemobile might not develop enough traction even with help, pipe is placed by rolling it onto rails and skidding it into position. This method also is used in some instances for placing the closing section at the end of a siphon where limited space prevents Pipemobile operation.

• **Progress**—The entire pipe-laying program is based on casting and placing the 16 ft long sections at the rate of 14 a day. When the Pipemobile works on steep slopes, the rate is substantially less, sometimes only two a day. However, on long flat stretches the Pipemobile has placed as many as 36 sections in a two-shift day.

Pipe is brought to the job by special heavy duty truck-trailer units and deposited in storage areas. These areas, leveled so the Pipemobile can maneuver, and usually are spaced about a quarter mile apart. An entry ramp leads from the storage area into the pipe trench to facilitate Pipemobile operation.

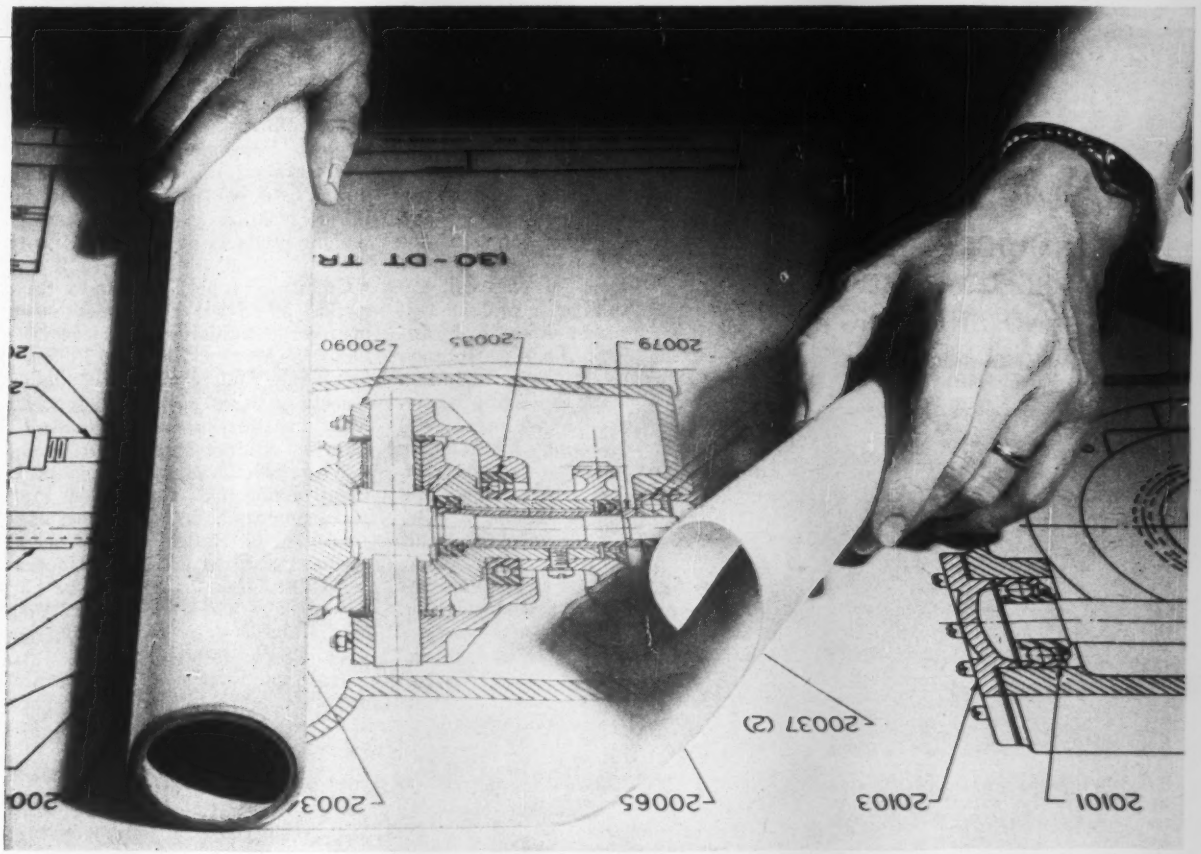
The truck-trailers, when loaded, are too heavy for over-the-highway transport. They travel on specially constructed roads that are, in some instances, merely a widened shoulder of a state highway. About 183 miles of access roads have to be constructed.

The truck-trailer units are equipped with 40 ton winches to make them self-loading. The winches roll the heavy pipe sections up a ramp onto the trailers at the pipe plant and accomplish the reverse procedure at the site storage areas.

• **Pipe manufacture**—Pipe is cast in a plant built for the job. It will be moved to a second location about 125 miles east of the present site as the job progresses.

Most of the equipment and procedures in the plant follow established casting practice. One innovation, however, is in the way that the heavy pipe sections are moved around the yard and are turned from vertical to horizontal position. A pair of the heaviest side boom pipelaying tractors team up to lift the pipe from its casting ring and move it to storage areas for final curing. After the pipe section is cured, the same tractors tip it from vertical to horizontal position for loading on the truck-trailers.

The pipe plant includes four sets of seven casting positions. Pipe is cast on the day shift at the rate of 14 lengths a day. Pipe is steam cured for 36 hours. The form crew comes on the job at 2:30 am to strip the pipe cast the previous day. When the casting crew arrives for the day shift, enough forms are set for casting work to commence. Steam curing is interrupted long enough



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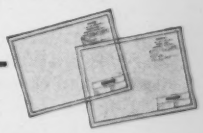

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. . . Siphon job is part of $200 million expansion

for the forms to be stripped, after which the steam hoods are replaced.

Pipe is moved from the casting rings to a storage during the second day. The curing process is completed by spraying a membrane compound on the outside and by spraying water on the inside where membrane curing is not permitted.

Reinforcing cages, of elliptical section, are fabricated in a yard at Etiwanda, 80 miles west of the first casting plant site (near the Big Morongo Siphon). Some of the cages include a steel cylinder. The reinforcing assemblies weigh between 6,000 and 13,000 lb. Accurate positioning of such heavy cages at the pipe plant is a rather exacting task.

• **Excavation**—The project includes nearly 1 million cu yd of excavation, nearly all accomplished by dragline. The excavators generally work from the front of the ditch. All excavated material must be stored on the ditch bank opposite to the existing siphon barrel.

Backfill is also a crane operation. Specifications require that backfill up to 2 ft above the centerline of the pipe be consolidated to 70% relative density as determined by USBR tests for cohesionless, free-draining soils. Trenches are backfilled upgrade, with material sluiced as it is placed around the pipe. Fill is granular and free draining, so sluicing produces the required density.

• **Credits**—The project is under the direction of Robert B. Diemer, general manager and chief engineer of MWD. Design was supervised by Robert A. Skinner, MWD assistant chief engineer. Construction is supervised by H. J. Mills, construction engineer, with T. J. Cain as resident engineer.

Many officials of American Pipe and Construction Co. contributed to the development of the Pipemobile, in particular A. G. Butler, chief mechanical engineer. O. M. "Chick" Hooper is project manager for AP&C Co.; Clyde Grant is construction superintendent; Hugh Hofmann is pipe casting plant superintendent; Jack Johnson is reinforcing cage plant superintendent, and Jeff Fletcher is transportation superintendent.

$200 Million Expansion Program

The $16 million pipeline project described in this article is part of a $200 million expansion of Metropolitan Water District facilities. Initiated in 1952, and to be completed by 1960, the program will double the capacity of the 240 mile Colorado River Aqueduct to 1,800 cfs, provide a second San Diego Aqueduct, and expand treatment and distribution facilities.

During initial construction of the Colorado River Aqueduct, between 1932 to 1941, its tunnels, canals, some short siphons and hydraulic gradeline conduit were built to ultimate capacity. Economic studies made then indicated a considerable saving by constructing the five pumping plants and 22 miles of inverted siphon to only partial capacity.

Ultimate pumping capacity requires nine units at each plant. Three units have been in operation since 1941. Units 4 and 5 were completed in 1956. Unit 6 will be completed in April. The last three units will be installed by 1960. Each pumping plant has three discharge lines. One line was completed in 1941, a second in 1956 and the third—now under construction—will be completed in 1959.

The one-barrel siphons were built in 1941 to 12½ and 12¾ ft dia with bifurcation structures to accommodate future construction. Their capacity was figured at 802.5 cfs. The new barrels are being built slightly larger—13 and 13½ ft dia—to give the aqueduct a total capacity of 1,800 cfs. The slight enlargement will facilitate transportation of the additional 112,000 acre-ft annual allotment of Colorado River water acquired by MWD in 1946, when the San Diego County Water Authority was annexed. Five more siphons, totaling 10 miles and situated west of the San Jacinto Tunnel, will be bid in early 1958.

The current expansion program was not expected to be needed until 1980, but the phenomenal growth in southern California has advanced the date by 20 years.

A second San Diego Aqueduct is part of the current $200 million program. First barrel of the 71 mile San Diego line was completed in 1947 and the second barrel was finished only seven years later. Delivery through these lines has been sustained at 200 cfs. To keep up with water demands, a second aqueduct is needed with an initial capacity of 250 cfs.

Another indication of increased water demand is growth of the MWD service area. Initially, it included 11 cities with an area of 600 sq mi. This has now been expanded to 82 cities and a 3,000 sq mi service area.

Money for the current construction work comes from several sources. Not all of the original $220 million bond issue for Colorado River Aqueduct construction was expended. In addition, $5½ million a year of construction money now can be raised by a 5¢ per $100 assessed valuation tax levee. Still other funds come from water revenues. And, finally, about $85 million will be provided by short-term (12 year) bonds.

These short-term bonds are backed by moneys owed MWD by annexed areas, which must pay to MWD all the taxes that would have been paid had the annexed areas belonged to the district since it was formed. This amortization generally takes place over a 30 year period. At present some $170 million is owed the district from this source.

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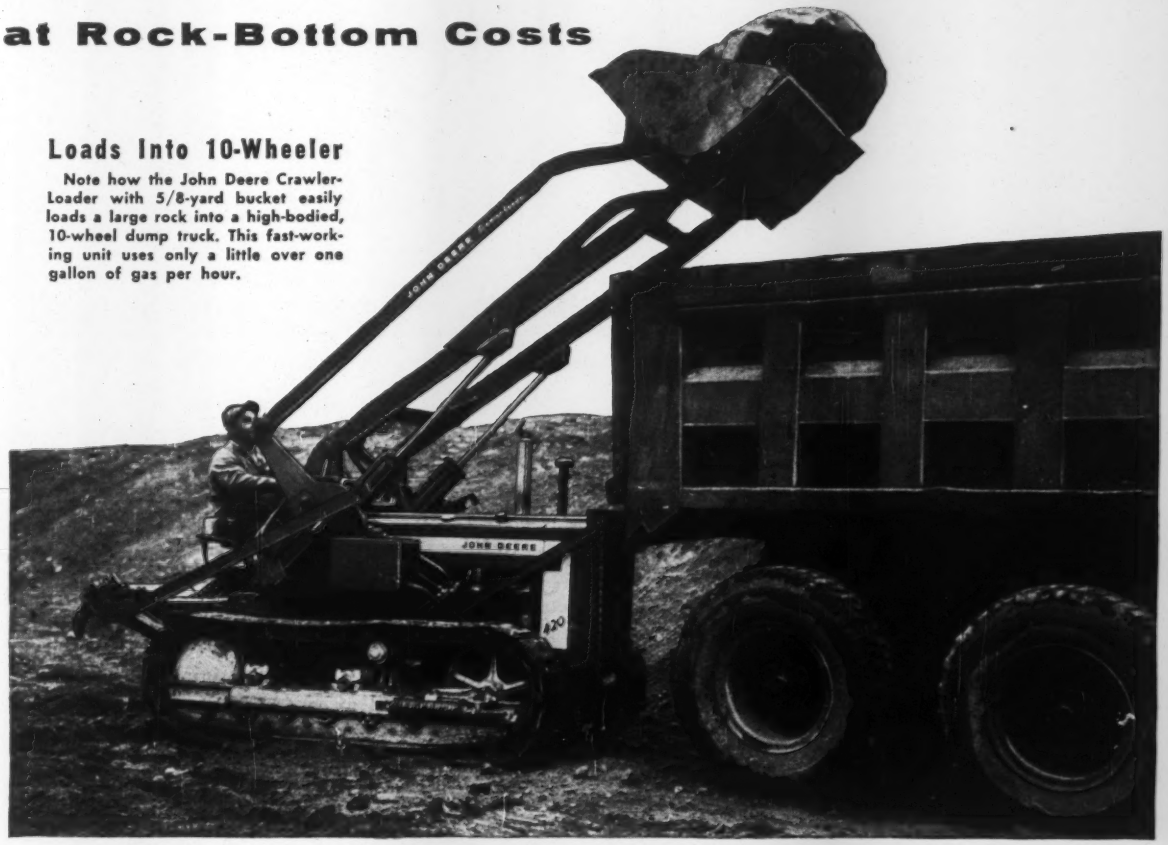

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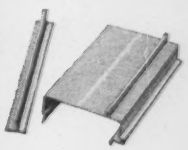

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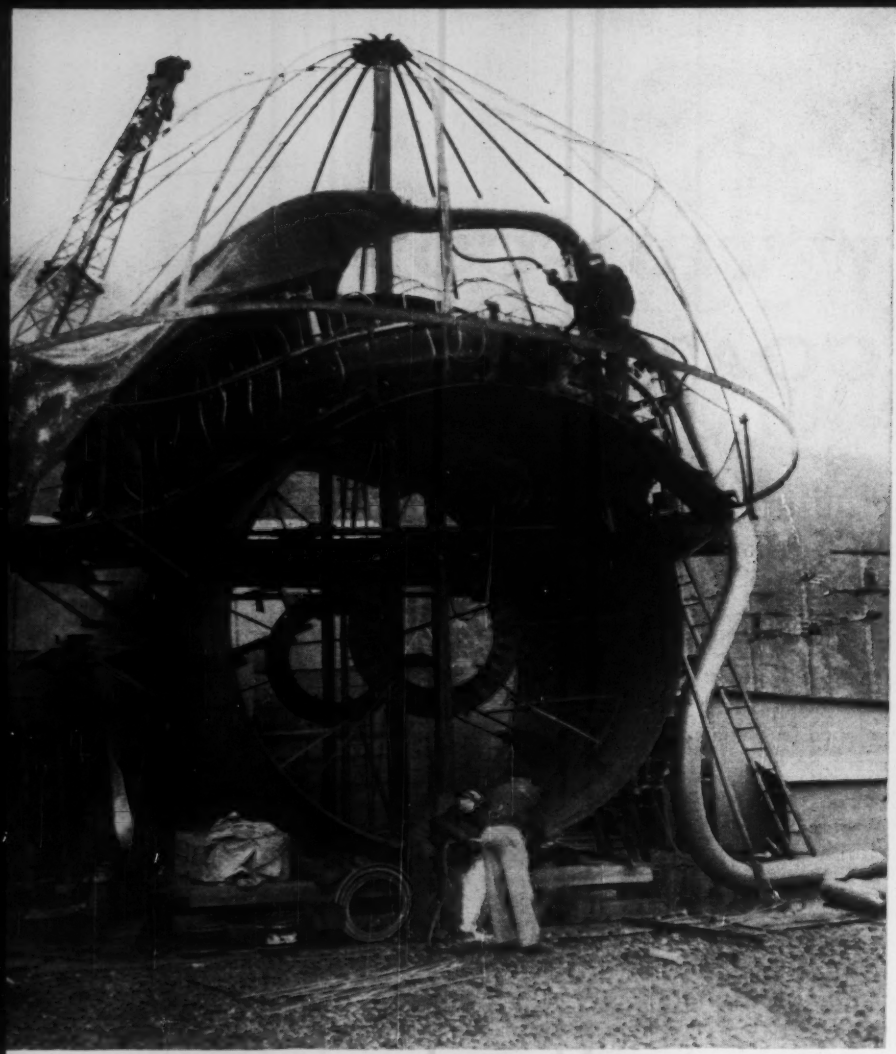
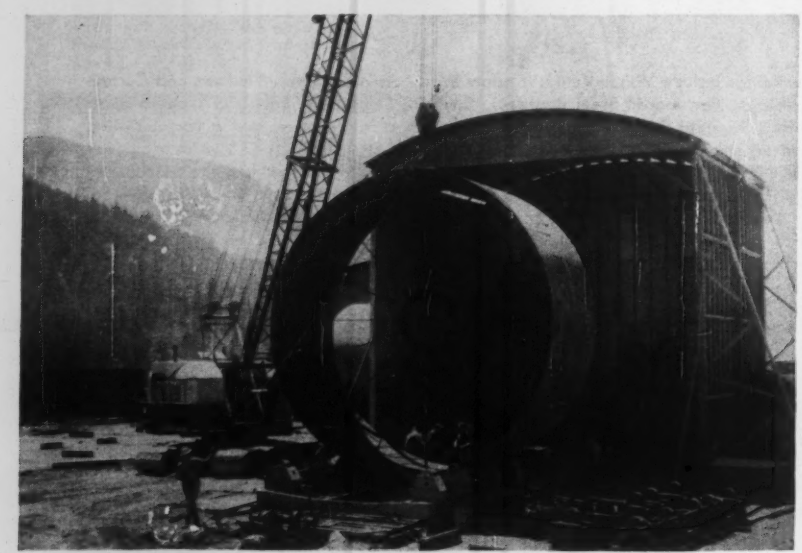


TUNNEL LINER—Penstock joint is stress relieved on the job at Swift Dam in Washington. Manifolds feed propane nozzles through insulation to perform the stress relieving.



SHED PROTECTS tunnel liner fabricating work from the weather at the Lewis River damsite. Powered rollers rotate the huge cans during welding.

LONGITUDINAL JOINTS of tunnel liner section are welded by automatic submerged

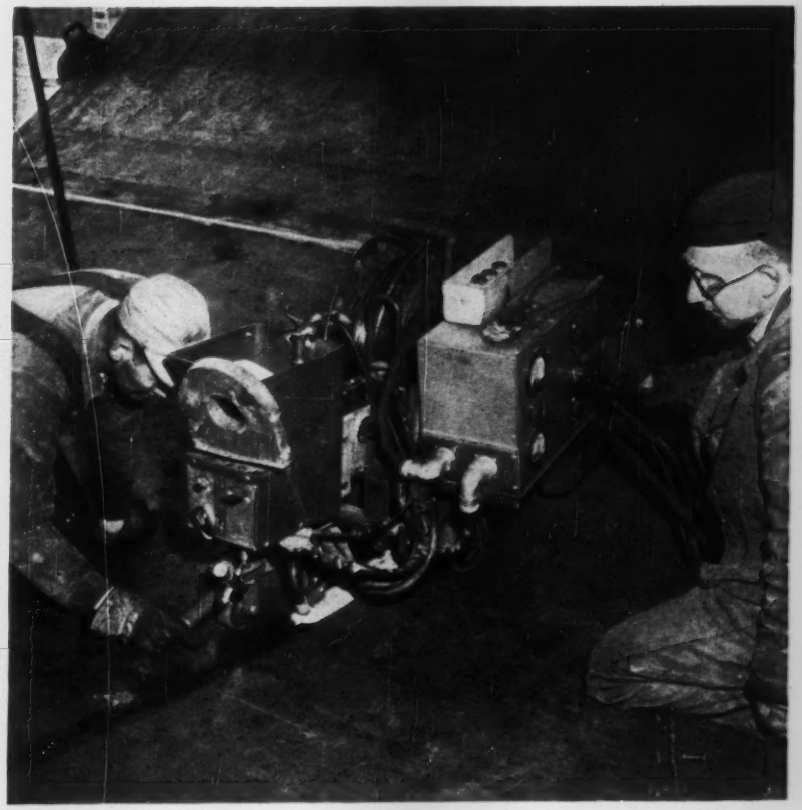
Steel Penstock

Joints between steel tunnel liners and penstock laterals were stress relieved on the job at the Swift hydroelectric project in Washington. The unique field setup is part of Pacific Power & Light Co.'s $51 million development, which includes the world's highest earthfill dam.

Leading to the powerhouse at Swift is a 1,575 ft long, 25 ft dia power tunnel. This is lined for its full length with steel tunnel liner ranging in thickness from ½ in. to 1 in. At the powerhouse, the tunnel branches into three penstocks. This results in two joints which include both a reduction in diameter and a lateral. In the first joint, the steel liner size reduces from 25 ft to 19 ft in diameter and there is a 13 ft penstock lateral. At the second joint the main tunnel reduces from 19 ft to 13 ft with another 13 ft dia penstock lateral. The penstocks average 162 ft in length.

Each of the lateral joints is reinforced with a heavy ring girder. All the work is welded in the field and it was necessary to stress relieve the assem-

arc machine with pressure backup. One pass of the machine welds 1 in. thick plates.



TRANSVERSE JOINTS also are welded by an automatic submerged arc machine as the 25 ft dia sections are rotated. Tunnel liner sections are thus preassembled in 20 ft lengths.

Assembly Stress Relieved on the Job

bly—particularly in the crotch of the joint.

Two stress relieving methods were tried. Both involved feeding propane gas through insulation to low pressure burner tips. The gas was fed through 2 in. dia manifolds each about 9 ft long and each having 36 nozzles for the propane.

On the first stress relieving job the insulation was a high temperature insulating blanket material which formed a cocoon around the ring girder. While this worked adequately, some difficulty resulted in maintaining a uniform heat distribution. On the second stress relieving operation, a block-type insulation was substituted for the blanket type.

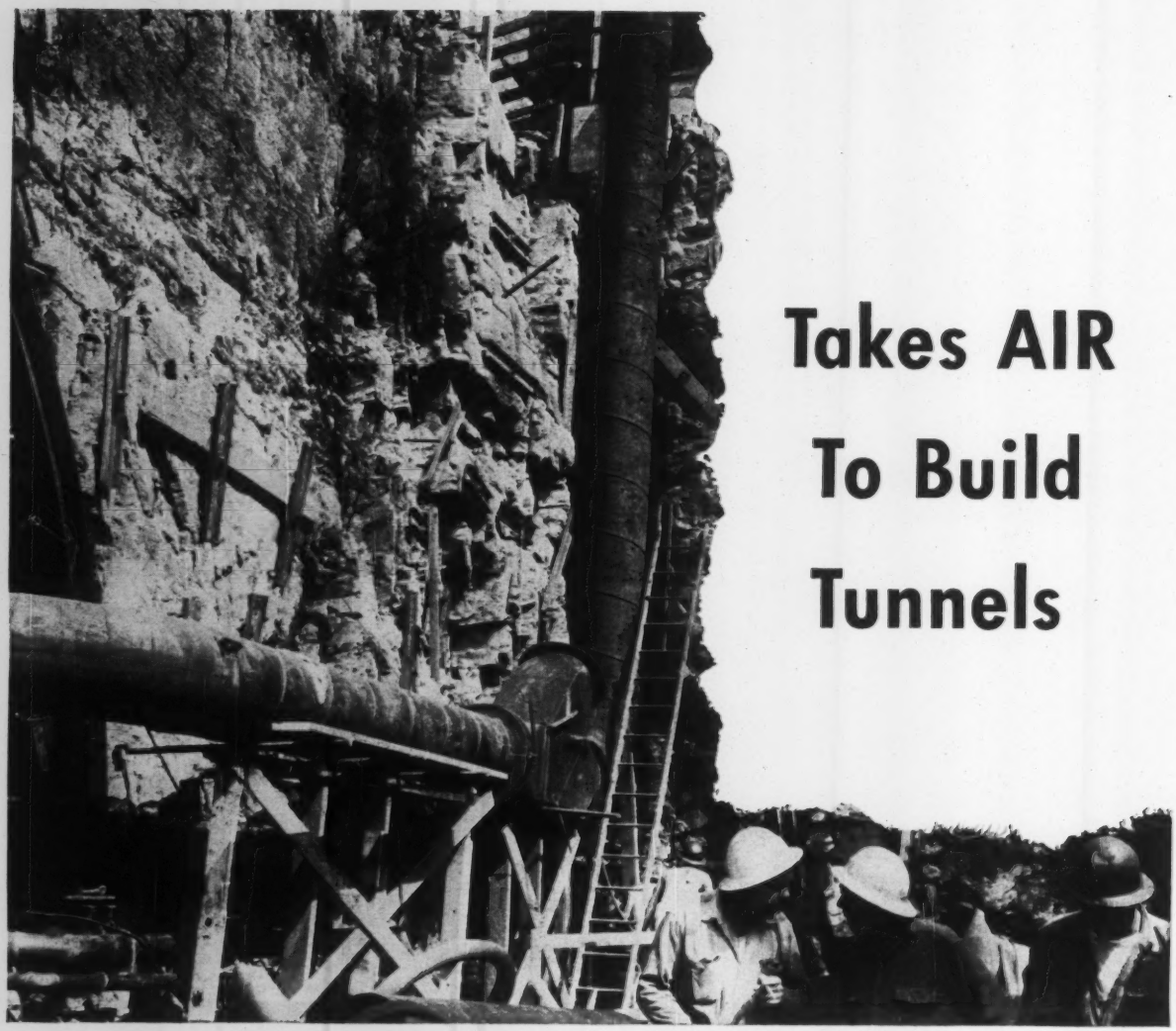
Fuel was supplied from a 9,600 gal propane tank. Thermocouples located at strategic places checked the shell heat.

The tunnel liner fabricating facilities were literally a "factory in the field". The steel shell was hauled to the job in 10 ft long sections with three such sections required for a complete circle.

JOINT IS PREHEATED for more effective welding. Stress relieving is not as important in regular sections as it is in irregular joint sections where penstocks join with tunnel lining. Note the rollers on which the assembly is positioned.

Automatic submerged arc with pressure backup joined the three sections into a circle. Then two complete cans were welded together for a 20 ft length before being placed into the tunnel. Inside the tunnel manual welding was required.

Bechtel Corp. is in charge of design and construction of the project for Pacific Power & Light Co. Steel fabrication contractor is American Pipe & Construction Co. Subcontractor for stress relieving is Industrial Sales & Services, Inc.



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TRAVELING GANTRIES with 50-ton chain hoist and 12-part line move 90-ton girders from casting beds (background) over a pair of erection trusses into place. The girders will support the deck of a bridge on the site of the U. S. Air Force Academy.

Gantries Set Prestressed Bridge Beams

Andrew J. Brown
Chief Structural Engineer
and
Fazlur R. Khan
Senior Structural Designer
Skidmore, Owings & Merrill
Chicago, Ill.

The extensive road system of the 17,900 acre U. S. Air Force Academy site in the eastern foothills of the Rocky Mountains near Colorado Springs, Colo., includes four major highway bridges and two railroad bridges. All have precast, prestressed concrete superstructures.

The four highway bridges contain 112 girders, each 120 ft long, for a total length of 13,440 ft. Each railroad bridge contains eight 72 ft span girders, for a total length of 1,152 ft in the two structures.

Thus, the six bridges required the precasting and erection of over 2¼ miles of post-tensioned concrete girders to carry cast-in-place concrete decks.

The largest bridge, which spans Monument Creek and the Denver & Rio Grande R.R., has five 120 ft spans. The deck is 71 ft wide. It has four 12 ft bituminous-surfaced traffic lanes, 2 ft of shoulders carried through on the bridge, a 4 ft wide non-mountable median strip, and 5 ft 6 in. sidewalks on each side.

The three other highway bridges—one of which connects the main entrance road with U. S. Highway 85-87 extending along the east border of the site—have four, three and two spans, respectively. They are twin-bridge type, with two close, but separated bridges carrying two lanes of traffic in each direction.

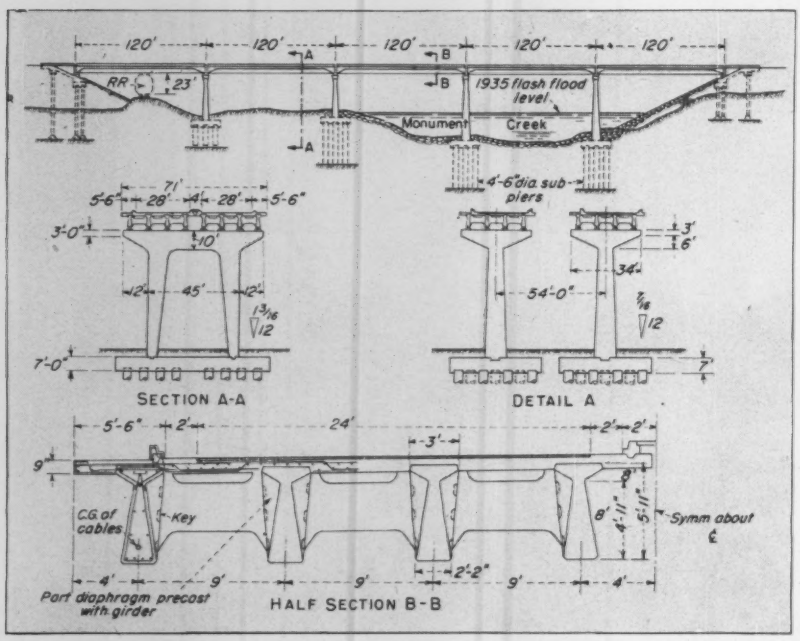
• **Basic consideration**—The 120 ft span length and the precast, post-tensioned bridge girder, were selected after consideration of all the relevant factors. Ratio of span length to pier height was based on comparative cost analysis, esthetic point of view and maximum weight of precast girder that can be handled safely.

Precast simple-span girders were preferred to the cast-in-place continuous girder on account of easier fabrication at the site, on level ground, instead of doing this work on high formwork. This circumstance also permitted better control of workmanship.

Equal span lengths were chosen for all the highway bridges to achieve economy by re-using the formwork and repeating the same details. Also, the roadway slab was cast in place for economy and to reduce the weight of girder to be erected and eliminate the problem of joints between precast units.

• **Design details**—All four highway bridges are designed for AASHO live load H20-S16-44. The modified T-shaped girders are 71 in. deep; the 26-in. wide bottom gradually necks down to 8 in., then widens out to 36 in. to form the top flange.

Each girder was precast and post-tensioned with an initial prestress force of 1,616 kips. Girders are thickened gradually near the end to increase shear and end-block bearing resistance. Diaphragms between girders are spaced 20 ft c-c, with no stiffeners being required between them. This gives the elevation a neat and smooth unbroken look.



FIVE-SPAN BRIDGE over creek and railroad has a four-lane divided roadway with two sidewalks. The other three highway bridges (Detail A) are twin two-lane structures.

The girders were cast with 5,500 psi concrete and post-tensioned after the concrete reached a minimum strength of 4,500 psi. Concrete stresses used in the design are: compression at prestressed 2,475 psi, tension at prestress 200 psi; compression at working loads 2,200 psi and tension at working loads 136 psi.

Precast girders are spaced 9 ft c-c, and a 7 in. slab was cast-in-place to form the main deck. Composite action is assured by projecting the top flange of the girder 3 in. into the cast-in-place slab and also by providing shear keys and hold-down stirrups. The deck slab is designed for 3,000 psi concrete and design stresses used are according to AASHO bridge-design specifications.

Diaphragms were also cast in place with 3,000 psi concrete and are separate from the deck slab. They are designed to withstand shear and moments due to non-uniform loading of the deck.

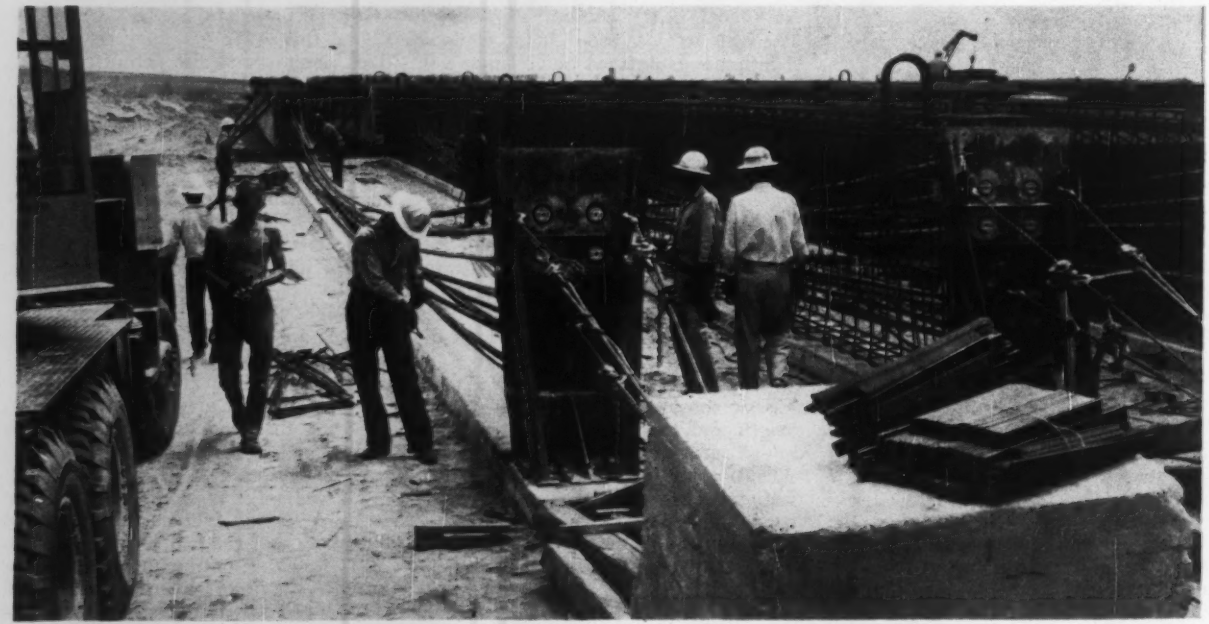
• **Casting and post-tensioning**—Different schemes were studied. Due to uneven terrain the contractor chose to cast the girders at one end of the bridge in line with their final locations. One casting bed was used for each line of girders. Plywood side forms were used in units of 20 ft length. External form vibrators were used with internal vibrators to assure proper compaction.

The girders were provided with lifting hooks embedded in the concrete at each end. The hooks were cut off after final positioning of the girders.

To attain the required 5,500 psi strength, a 7 bag mix with about 5% air entrained and 2½ to 3 in. slump was used. Field curing was done by spraying with a non-staining membrane.

By this method concrete strength of 4,500 psi was obtained in about 6 days, after which the girder was tensioned and moved forward in line, leaving the bed ready for casting the next girder. Next, the cables were grouted and left undisturbed for three days.

Each cable consists of 16 parallel ¼ in. dia button-headed wires prefabricated to proper length in flexible waterproof metal conduit. Each girder requires 12 cables, each draped parabolically in a vertical plane and anchored at the ends



STRESSING CABLES anchored to girder end-form are adjusted to required parabolic sag by hand ratchets pulling against huge concrete deadman. Anchor plates are nearly perpendicular to the cables.

Canadian Construction "TOWN"

Built of Armco Steel Buildings

Construction camp of The Shawinigan Engineering Company, Ltd., consisting of Armco Steel Buildings, is in a remote location on the upper St. Maurice River in Canada. The hydro development being constructed will have a capacity of 246,200 kilowatts.

At Rapide Beaumont, ten miles north of LaTuque, Quebec, Canada, a hydroelectric power development project is under construction by The Shawinigan Water and Power Company, Ltd., Montreal, through its subsidiary, The Shawinigan Engineering Company, Ltd.

Because of the isolated site of this project, it was necessary to build a "town" to provide shelter for the 1,600 workers. Armco Steel Buildings were selected by the contractor for ten 80-man bunkhouses; a number of two- and three-bedroom apartments for personnel with families; a 44-man staff house; staff bungalow; caterer's staff house; multiple-unit mess hall; hospital with operating facilities; laboratory; triple-unit general office; electrical and pipe-fitter's shop; steam plant; and two stores buildings—a complete construction-site "town."

The contractor purchased these Armco Buildings because they could be easily dismantled, moved and re-erected. Other reasons were their attractive appearance and low maintenance costs.

* * *

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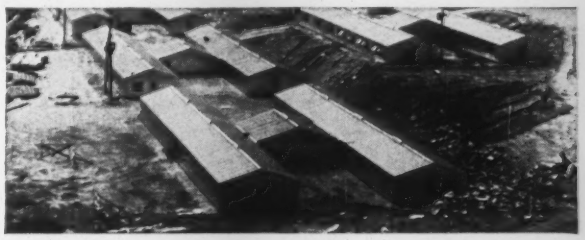

View of a group of the 80-man bunkhouses of Armco Steel Buildings, erected in "H"-shaped structures. Smaller connecting units provide lavatories.

Main office of the contractor. Consists of three Armco Steel Building units, with over-all dimensions of 99 feet wide by 108 feet long. Zinc-coated STEELOX® Panels do not require painting.

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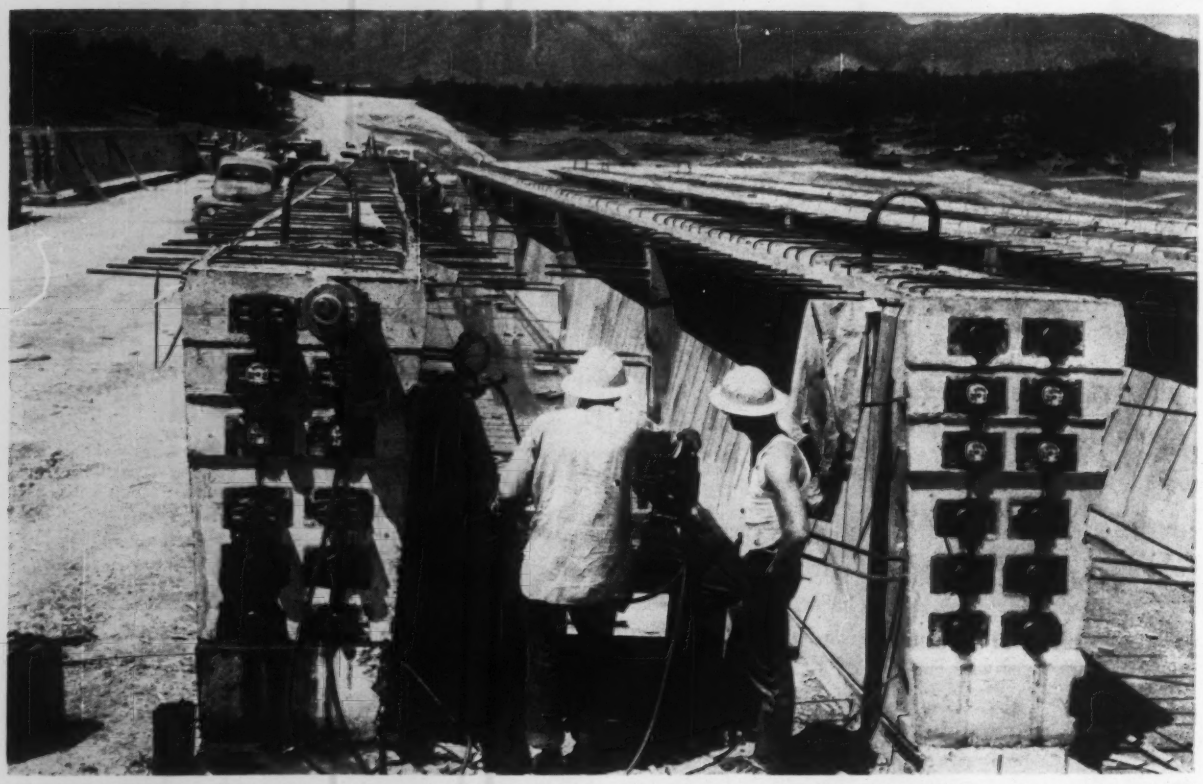

POST-TENSIONING of the girders is accomplished when the concrete reaches a minimum strength of 4,500 psi by applying a 1,600 kip pull on each of the twelve 16-wire cables. Wires are anchored by means of buttonheads pressed on their ends.

so that the anchor plates are normal to the cables within 3 deg.

To pass some of the cables through the 8 in. neck near the ends of the girder, horizontal curves were required. Tensile components from these horizontal curves are taken up by No. 3 ties connecting similar cables having opposite curves.

Before concrete was placed, the cables were secured in proper position by tying them to spacer rods, and the anchor plates were held in position by a steel form-plate.

The stressing jack had a collar that screwed over the washer holding the tendon buttonheads. The cables were elongated slightly more than required, to allow easy insertion of shims between the washer and the anchor plate. The jack was then released to transmit the pressure on the anchor plate through the shims. After tensioning was completed, all cables were grouted under an average pressure of 50 psi.

• **Erection procedure**—Each 120 ft girder weighs about 90 tons. It would have been difficult to place such heavy girders with cranes. Moreover, due to uneven terrain, it would not have been easy to cast the girders near the foot of the piers. These difficulties were obviated by casting the girders on the road bed at one abutment and moving them straight into position on the piers.

The girders were secured at the two end hooks and lifted by hand operated winches. The winches were installed on six-wheel gantries, which rolled over two light triangular trusses spanning the piers.

These trusses were fabricated in three units. When the center unit was omitted, they were just the right length for erecting the railroad girders.

During the moving in of the girders the top chords of trusses were braced against each other. With the gantries in final position (over piers or abutments) this bracing was unbolted at one truss and left to swing down, out of the way, about the other end, which had a hinged connection.

The complete operation from placing the girders to the finished deck was carried through in the following sequence:

Girders were moved on the span and rocker bearings were adjusted for proper alignment at prevailing temperature. The diaphragms were then cast in place and allowed to set. After this formwork for the deck was placed. This formwork was held by inserts cast in the prestressed concrete girders.

The deck was cast in one operation. After the concrete had sufficiently hardened, a rolling platform hung from the deck was used to take off the formwork for the slab.

• **Railroad bridges**—The two railroad bridges carry a single track of the Atchison, Topeka & Santa Fe Railroad over main roads of the academy site. Each structure is made up of two 72 ft simple-supported spans. To reduce form and labor costs, the same girder sections were used as those in the highway bridges.

The deck is supported by four precast post-tensioned girders spaced at 4 ft c-c. The 22 ft wide 9 in. thick deck and diaphragms were cast in place using 3,000 psi concrete. Sidewalks 2 ft 6 in. wide are provided on both sides of the deck while the track is carried on 15 in. of ballast.

Both bridges are designed for Cooper E-60 loading. Prestressing details, diaphragm positions and deck slab detail were changed as necessary from those in the highway bridges to carry this load.

• **Substructures**—Two types of piers were used for the highway bridges. For

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in manufacturing the
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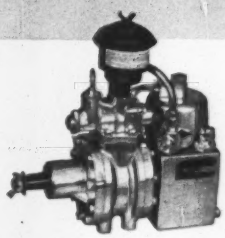
AIR COMPRESSOR
and other air brake components improves operating efficiency and service life



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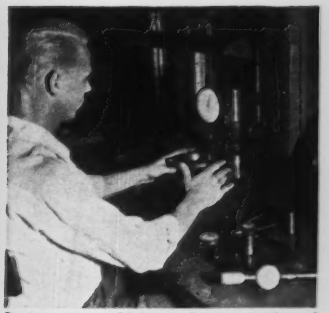

2. Accurate machining and gauge testing of the stator, as well as the rotor, also contributes to the rotary compressor's ability to operate for long periods of time without delevoping leaks or losing efficiency.

3. Compressor shafts are given the "cold box" treatment. When exposed to very low temperatures, the shaft diameter contracts. This altered shaft diameter allows proper insertion into a heated rotor to form a strong, composite unit.

4. Compressor rotors are subjected to high oven temperatures to expand rotor diameters. Shafts and rotors joined together under these extreme conditions resume their original relative size to create an extra strong assembly.

5. Assembled rotary compressors are hooked up to air lines and operating air pressure is applied for leakage tests. While holding pressure, entire compressor is submerged to determine whether any air is escaping.

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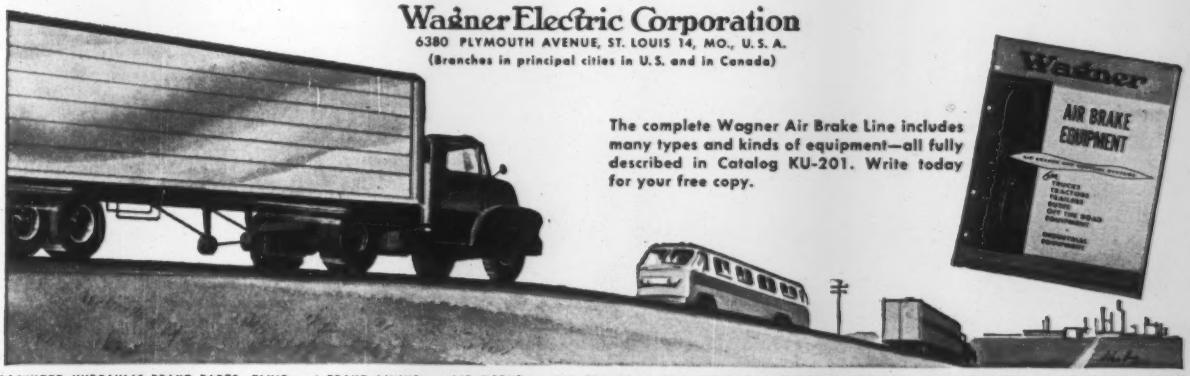

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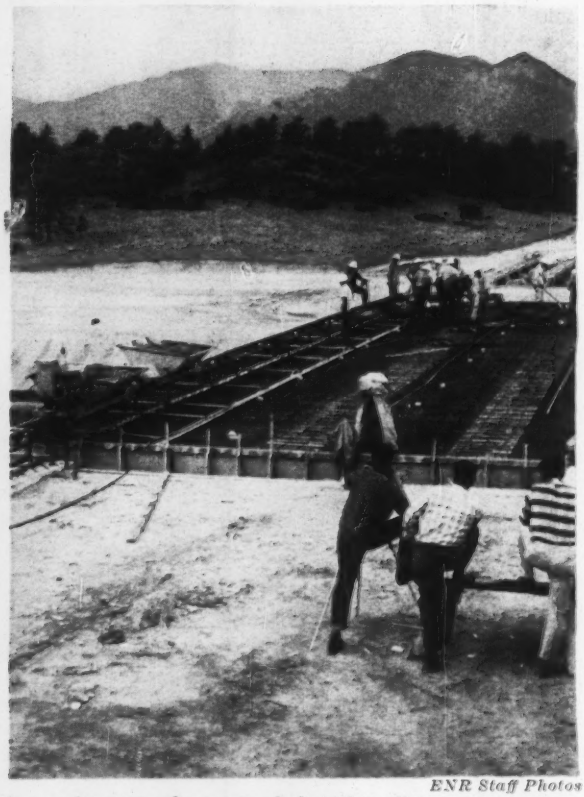


ENR Staff Photos

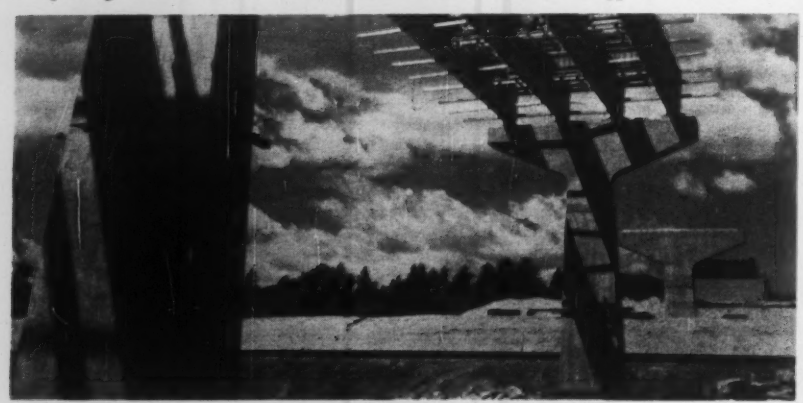
TRUCK MIXERS discharge concrete directly into transporter and trailer (left), for delivery by monorail and placement in roadway forms of prestressed concrete deck (right). Slab forms were later removed by men on a rolling platform hung from the deck.

the twin-bridges the piers are T-shaped, and for the four-lane bridge the pier is portal type. Both types of piers have a maximum height of about 70 ft. Sides of the piers are provided with batter in both directions, making them esthetically pleasing and yet structurally efficient.

Slender pier legs presented a problem in accommodating standard-size bars. This was solved by using special size, No. 18 bars. It was specified that all splicing of these bars should be done by butt weld. However, the contractor was successful in procuring full-length bars.

Drilled-in sub-piers, having diameters ranging from 2 to 5 ft, were used in all the foundation work. At some points, and especially at the creek bed, unusual inflow of water was encountered. For rate of flow less than 40 gpm, a 6 in. oversize hole was drilled, water was pumped out and concrete was placed quickly. Where the rate of flow was more than 40 gpm, richer concrete was placed by tremie into the 6 in. oversize hole.

Caps for groups of sub-piers were designed taking into consideration both their stiffness and the elastic shortening of sub-piers under load. The thickness of the caps is, therefore, more than that for purely flexural strength requirements.

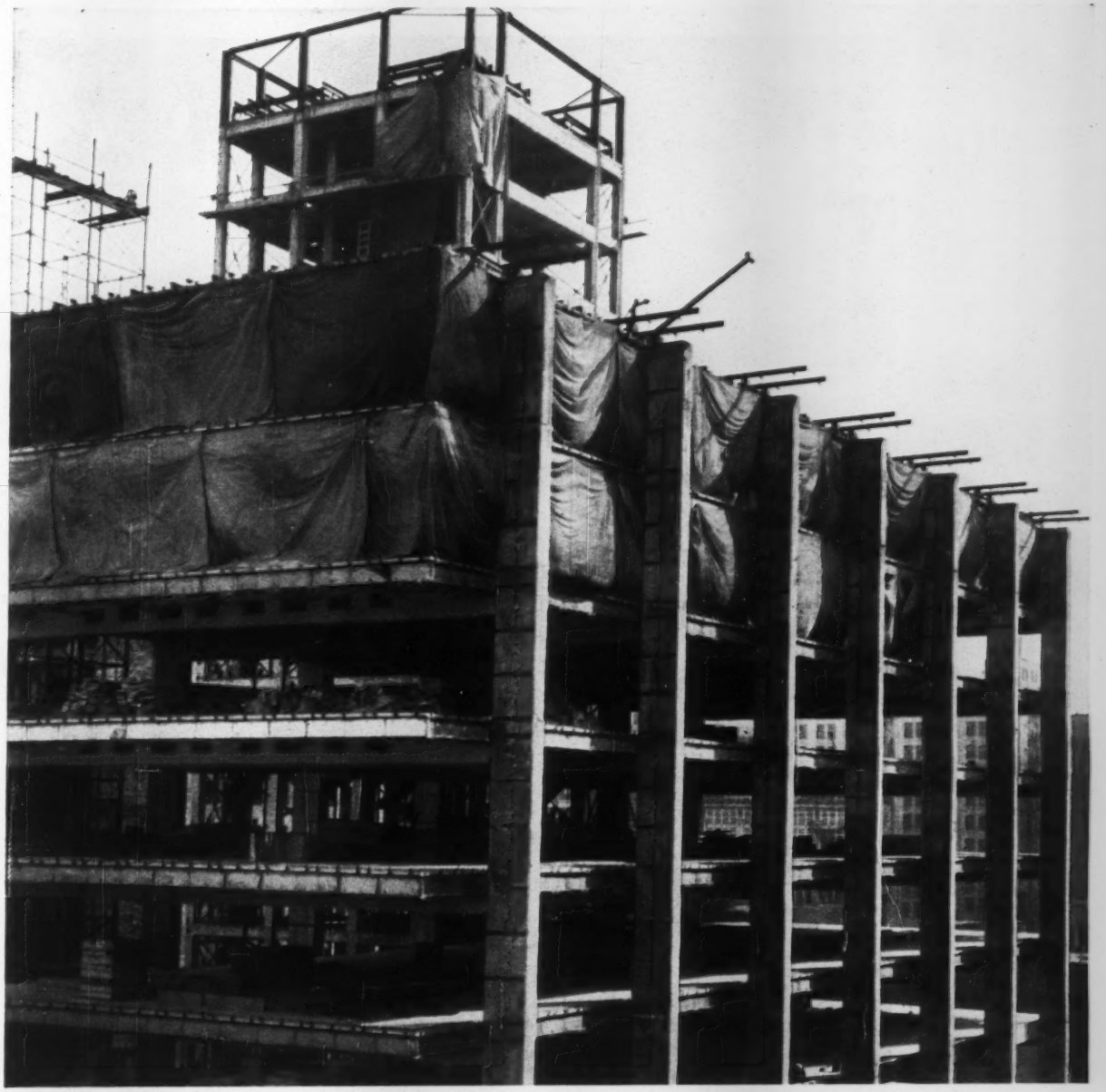


T-SHAPED PIERS support the prestressed girders for twin bridges.

• **Men in charge**—Construction is under the supervision of the Air Force Academy Construction Agency. Col. A. E. Stoltz is the director. Col. E. W. Scott, Jr., is executive officer; John P. Huebsch, deputy director; Col. Ben A. Scarbrough, chief of the engineering division; and Col. J. A. Barnett, chief of construction operations.

C. L. Tyler and E. A. Merrill are general manager and director of engineering, respectively, for Skidmore, Owings & Merrill's Colorado Springs office. John Merrill is in charge of the entire project, with Walter Netsch in charge of design and Jack Train, chief of production.

General contractor for the bridges is A. S. Horner Construction Co. of Denver, Colo. Preload, Inc., New York was consultant on the superstructure of the highway bridges.



INLAND SECURITY—This ultra-modern Inland Steel Building, erected by the Turner Construction Company, towers 19 stories above the heart of Chicago. The first major building ever designed with exterior supporting columns, it provides an unincumbered area of over 10,000 sq. ft. on each floor. Since much of the construction was undertaken during the cold winter months, sturdy tarpaulins were essential to protect the workmen and exposed areas of the building from this rugged weather. Selected for the job were tarpaulins of Mount Vernon duck, made by M. Mauritzon & Co. and supplied by W. W. Lee & Son, Chicago.

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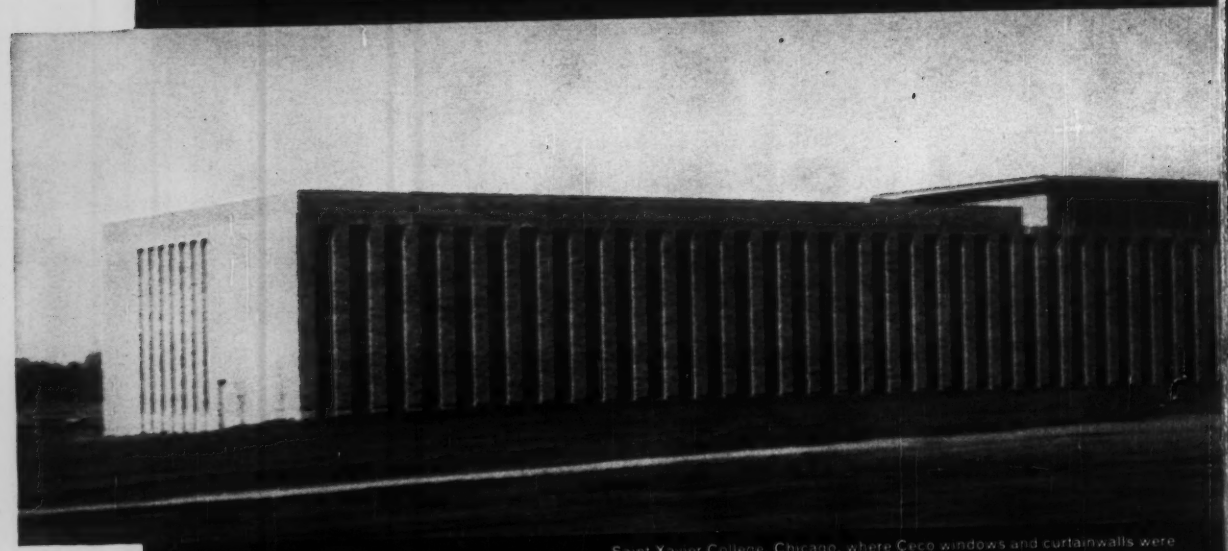
Administration Building, where Ceco curtainwall was used to give solid pattern appearance, yet balance with varying treatments in other areas.

Saint Xavier Library, example of vertical and horizontal construction tastefully blended. Ceco windows on left are 1¼" steel heavy intermediate projected; on right, aluminum projected. Air is deflected upward, allowing controlled ventilation.



Saint Xavier College, Chicago, where Ceco windows and curtainwalls were used to dramatize seven separate buildings: administration, classroom, convent, science, gymnasium, library and service. Architects and Engineers: Naess and Murphy. Contractors: E. H. Marhoefer, Jr. Company.

Convent Recreation Room under construction. Ceco longspan open-web steel joists allow great flexibility in arrangement of partitions and fixtures, eliminate interior columns. Workers are installing Ceco steel casements and steel picture windows in prepared openings.

Classroom Building, center, illustrates how Ceco windows (aluminum projected, in this case) are used with masonry wall construction without disturbing the predominant curtainwall pattern.

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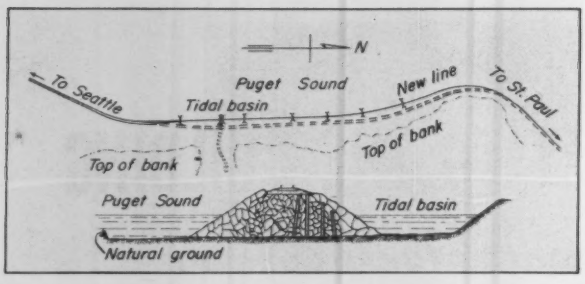
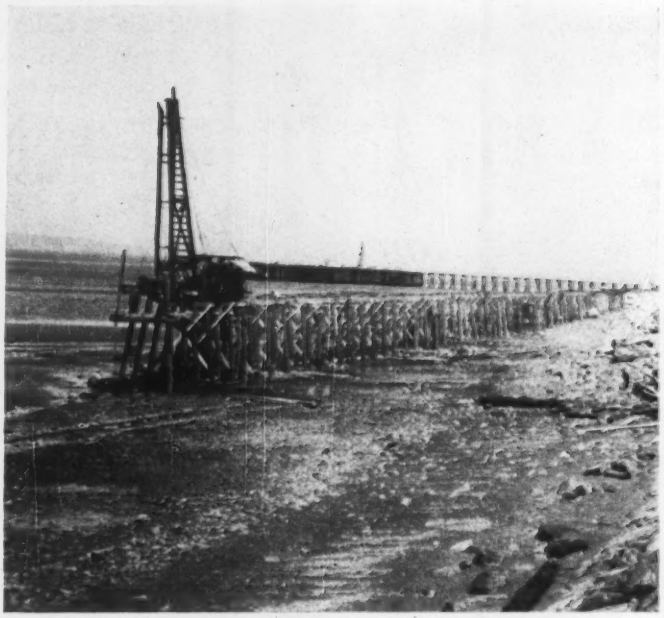


When frequent rock slides delayed trains along a stretch of track skirting Puget Sound, engineers moved into the water to build some new trackage . . .



1. WOOD TRESTLE construction is first stage of operation. These piles are driven to

3. CONCRETE CULVERTS are also moved by bulldozer into alignment.

4. ROCK TRAINS bring their loads of quarry rock onto the trestle. Bulldozer shoves material into place after trains leave.

Railroad Crosses Bay to By-pass Rock-Slide

Plagued with a stretch of double track on its main line just north of Seattle, Wash. that was often closed by landslides and falling rock, the Great Northern Railway Co. solved the problem by building a rockfill bypass reaching across a bay in Puget Sound.

The single-track line replaces more than a mile of the original track, built in 1891. Design features include a rock berm to resist heavy weather wave and tide action on the track ballast.

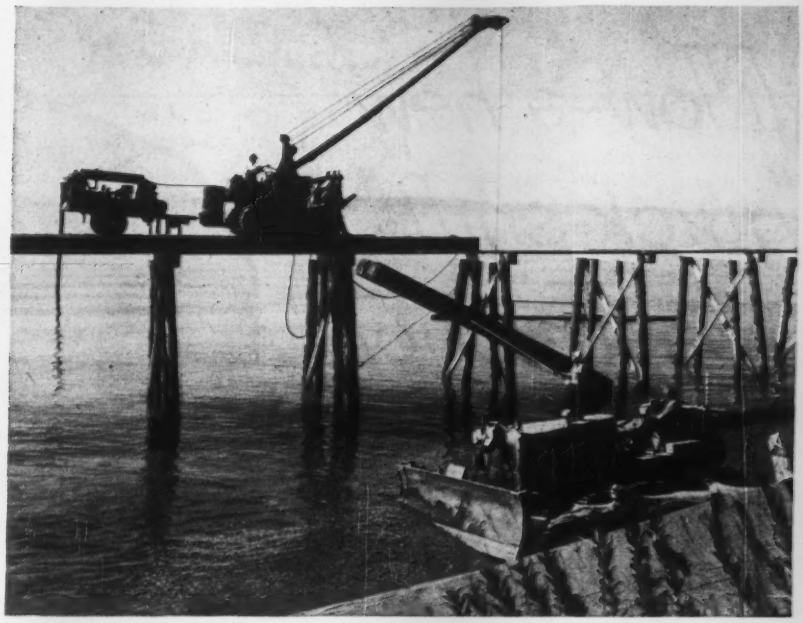
The relocation is an average of more than 100 ft—and a maximum of 165 ft—offshore from the original line.

A wood pile trestle was first constructed in three sections along the proposed line. Large timber stringers were than mounted on timber pile bents, and temporary trackwork was put down on the panels.

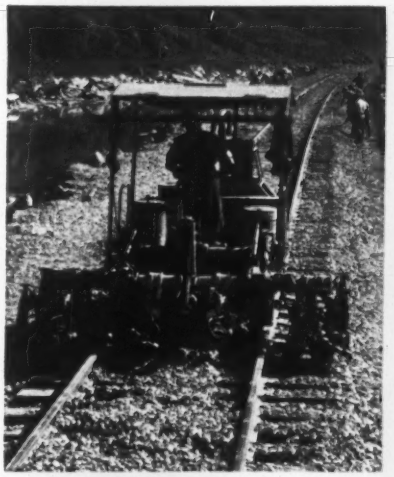
Rock trains, averaging 40 cars each, then shuttled back and forth making two round trips daily to a quarry in the Cascade Mountains, 65 miles distant. In fifty ton loads, large boulders were dumped from air-dump cars until the fill reached rough grade. During the first stage of rock placement, the dumping was done on the outboard side of the trestle, bulldozers shoving the rock into place during the hours between trains.

After a section of fill reached rough grade at a width sufficient to carry permanent trackage, the stringers and track

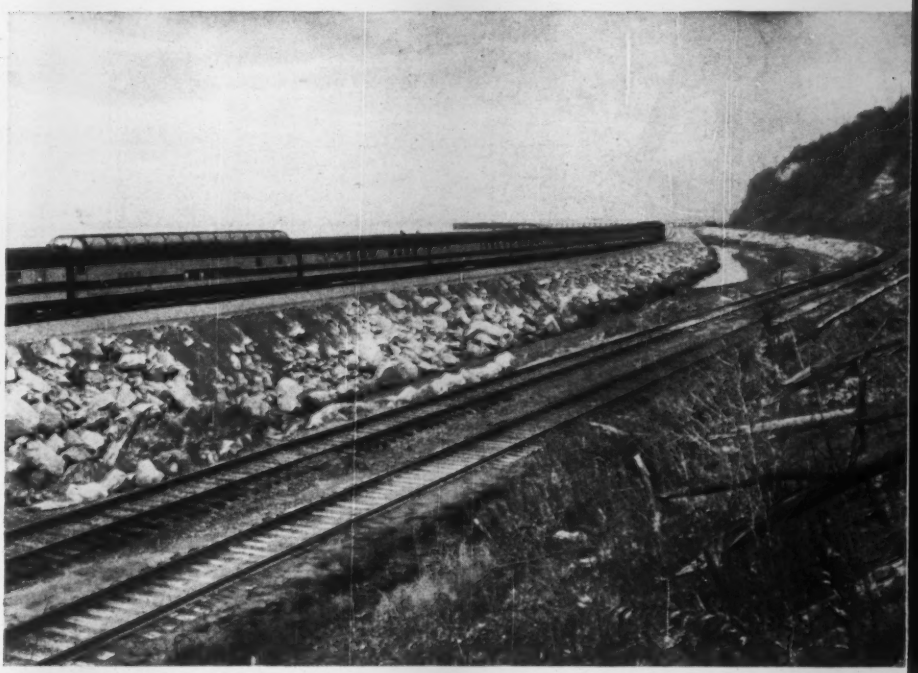
carry temporary trackage handling the rock trains.



2. TIMBER STRINGERS are next moved into place to support panels of temporary track. Bulldozer positioned stringers for hoisting.



5. ROCK BALLAST goes into position, as final 6 in. lift is compacted with tamper.



6. EMPIRE BUILDER—line's crack express—speeds along relocated section of main line—now free from hazards of falling rock.

Danger

panels were moved ahead, and skeleton trackage installed. The rock trains then following the skeleton track, dumped on the inboard side of the fill. After subgrading and ballasting, the skeleton tracks became the permanent trackage for the line.

More than 7,000 carloads of quarry rock, a total of 211,000 cu yd, were placed to form the rough fill. A subgrade placed on top of the rough boulder fill required 111 carloads of secondary crushed stone, 30 cu yd to the car, placed to a depth of 1 ft above the rough fill. Atop the subgrade went 6,000 cu yd of crushed stone ballast, with the track being given one six inch lift. Finally a berm of 6,000 cu yd of large rock was placed as a weather protection.

To equalize the tidal flow and to allow pedestrian access, seven 72 in. dia. concrete culverts were placed before the filling operations covered them.

Construction of the rockfill relocation was done by Morrison-Knudsen, Inc., of Boise, Ida. under a $1.25 million contract.

Now-a new "quick-shift" for construction giants

New Allison TORQMATIC 5840 FourSpeed—the first "quick-shift" available for 400 horsepower engines.

Here it is – available now – the Allison TORQMATIC CBT-5840 FourSpeed. This new Transmission outdates – for the first time – old-fashioned, piece-and-patch power trains in "giant" giant earthmovers, loggers and other heavy-duty construction equipment with engines up to 400 h.p. And, the new TORQMATIC CBT-5840 FourSpeed is specially designed in one compact package to provide maximum capacity in minimum space.

New high-capacity TORQMATIC Converter multiplies engine torque more than 313% –prevents engine lugging –slashes power-train and engine maintenance.

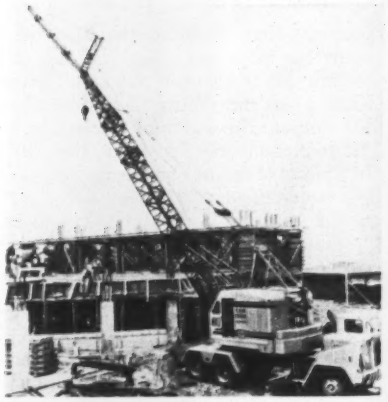
New long-life planetary transmission eliminates clutching and declutching. It *full-power shifts* in all four speeds for faster round trips – makes every driver an expert.

New integral Hydraulic Retarder with weight-saving aluminum impeller takes the load off your mind–permits faster, safer descents on even the steepest grades–cuts brake maintenance more than 50%.

TORQMATIC DRIVES have brought greater workability and lower operating costs to 122 different types of road-building and construction equipment made by more than 80 manufacturers. Take the tip – get the Allison TORQMATIC story. See your equipment dealer or write:

ALLISON DIVISION OF GENERAL MOTORS, Indianapolis 6, Indiana

Allison TORQMATIC® DRIVES



Hydraulic Counterweight Removal System for Crane

Gar Wood's model 100BT 25 ton truck crane has a hydraulic counterweight removal system, a choice of 6 x 4 ft or 6 x 6 ft chassis and high capacity clutches and brakes for precision in steel erection work.

With this hydraulic system, a button lowers the counterweight to a point where it straddles the main frame. Here, the crane's own hook block can be attached and the weight removed from the chassis; or the counterweight can be roaded by the crane, since in this position the weight distribution conforms to legal on highway limits in most states.

The machine also features a detachable rear outrigger housing that can be used to reduce gross weight for highway transport. A live boom hoist, direct gear drive, conical hook rollers and fabricated machinery deck are also a part of the machine. The machinery deck is permanently rigged for all ordinary attachments to reduce conversion time.

Both manual and hydraulic counterweight removal systems are offered. Gar Wood Industries, Inc., Wayne, Mich.

Tractor-Shovel Is Prototype of Series

A four-wheel-drive, rear-wheel-steer, 1¾ cu yd tractor-shovel is the prototype of a new series. Three interchangeable buckets are available—a 1⅜ cu yd; 1¾ cu yd standard and 2¾ yd light material bucket.

The outstanding new design feature, the manufacturer says, is the use of short, rigid lift arms, pivoted forward of the operator's position. J. I. Case Co., Racine, Wis.

Big Density Cone Measures Coarse Soils in Place

In-place measurements of the density of coarse grained soils and gravels can be made with a 12 in. sand density cone. The device is seen applicable on fill material for dams, levees, airbases, roadbeds and other heavy construction.

Density is measured by the rate at which sand, funneled through opposed twin cones, is compacted into a hole in the fill material. The uniformity and rate of flow of the sand may be observed by the test operator through a transparent acrylic plastic chamber that threads into the upper cone.

The lower cone has a flange, allowing use of the apparatus on holes up to 12 in. in diameter. Upper and lower cones are joined by a machined valve assembly. The massive plastic chamber is formed of a cast acrylic tube 12 in. in diameter with ½ in. walls. Complete apparatus weighs only 100 lb.

Smaller models of the sand density cone, down to 4 in. in diameter also are available. Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.

Mobile Chart Filer Holds Up to Sixty Rolled Plans

A mobile tubular file with dual-tiered, circular tube compartments is designed to hold rolled blueprints, charts, maps and similar materials in an upright position for filing and storage. A stepped bottom makes titles clearly visible, files readily accessible.

The Plan-Mobile, as the file is called, is available in 30 and 60-file capacities. It moves on ball-bearing casters and is made of heavy-gage steel finished in gray enamel. Stacor Equipment Co., 295 Emmet St., Newark 5, N. J.

Bituminous Distributor Designed for Economy

A new distributor has been designed to heat and apply all types of bituminous material economically.

A number of new features are included in the machine, particularly a rear housing that covers the pump, engine and all piping. This heated housing also serves as a high operator platform.

According to the manufacturer, operation is simple: Two controls perform all functions—distribution, suckback, hand spraying, filling, circulating and transferring. The piping system is only 5 ft in length.

Another first claimed by the company is its fireproof burner box. The box is completely enclosed and designed to snuff out any fires that might occur.

Standard equipment includes a 36 hp engine; a 375 gpm pump; 12 ft suckback spray bar with positive cutoff, hand patching hose and spray arm; and hydraulic spray bar lift. Municipal Supply Co., 2508 S. Main St., South Bend, Ind.

(*New Products continued on page 56*)

3 feet of frost...
trench 5 feet deep...
30 inches per minute

CLEVELAND TRENCHERS, like Sunberg Well Company's Model 110 working here on the installation of 38,000 feet of 4-inch main in tough frost digging in DeSoto, Iowa, have *for over 25 years* delivered ***more trench . . . in more places . . . at less cost.***

Clevelands are built by The Pioneers of the Modern Trencher, originators of *every* important trencher design feature. There's a Cleveland for every trenching job and you'll find them working everywhere, giving good *reliable* production on tough jobs as well as easy ones—and doing it for year after year.

THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO
Good Everywhere

One-Coat Sealer Prevents Concrete Floor Dusting

A one-coat, multipurpose floor treatment has been developed for the protection of newly laid concrete floors. Known as the West Concrete Floor Treatment, the material is claimed by its manufacturers to serve the three functions of curing, hardening and sealing concrete floors.

For maximum protection, a single application should be applied within six hours after final troweling.

The coating covers 300 to 350 sq ft per gallon and is said to provide excellent water retention. It is wear-resistant and impervious to most chemicals, according to the manufacturer, and, as a sealer, prevents dusting from the concrete floor.

It is applied by lamb's wool applicator or by brushing on surfaces with a bristle brush. It also can be sprayed on surfaces. Depending on the degree of coverage and effectiveness desired, the cost of the treatment ranges from $0.02 to $0.008 per sq ft. West Chemical Products, Inc., 42-16 West St., Long Island City 1, N. Y.

Roller and Vibrator In One Machine

Deep penetration vibratory compaction and static-weight surface rolling can be done in a single operation by a new roadbuilding machine, the Austin-Western Roller-Compactor. When vibratory compaction is not needed the unit can be used as a three-wheel 10 to 12 ton roller.

The vibratory portion is a self-contained unit consisting of a three-shoe vibrator assembly, an independent hydraulic system and a separate 61 hp gasoline engine. Each shoe weighs 450 lb and vibrates through a vertical distance of ¼ in. at 2,100 to 2,200 times a minute. Austin-Western, 601 Farnsworth Ave., Aurora, Ill.

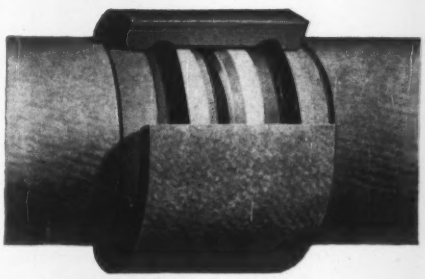
Lightweight Concrete Plank Can Be Sawed, Nailed

A multipurpose building material, named Calsi-Crete, a lightweight cellular concrete, is now on the market. The initial forms in which it is being marketed are industrial and commercial roof planks measuring 20 x 80 in. by 3½ in. thick. They will sell for about 56¢ per square ft. They may be used for any type of building but are especially recommended for structures with large roof areas, according to the manufacturer.

Calsi-Crete's light weight is claimed

THE MODERN PIPE JOINS TIGHT IN RAIN OR SHINE

"K&M" ASBESTOS-CEMENT PIPE and exclusive FLUID-TITE Coupling



Exclusive sealing rings are the secret of the "K&M" FLUID-TITE Coupling installed with "K&M" Asbestos Pipe. All "K&M" couplings and pipe are hydrostatic pressure-tested to 3½ times the rated operating pressure!

No need to wait for dry skies or a dry trench before installing "K&M" Asbestos-Cement Pipe. Wherever water is to be piped under pressure, "K&M" Pipe is the modern answer. The exclusive FLUID-TITE® Coupling makes installation quick, easy—and permanent.

No special equipment; little skill needed. Just two easy steps: 1. Lubricate rubber rings; 2. Slide pipe into coupling. It is watertight immediately. The FLUID-TITE Coupling allows deflection up to 5° at each joint. Installation and maintenance costs go down when you specify the *modern* pipe and coupling . . . "K&M."

Meets specifications. "K&M" Pressure Pipe meets A.W.W.A., A.S.T.M., and U.S. Federal Specifications, and has Underwriters' Laboratories approval for all sizes (pipe and couplings) in Class 150.

Learn the advantages of the *modern* pipe from the K&M distributor. Or write to us for complete information, including a Flow Chart for "K&M" Pipe based on the Williams and Hazen formula.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

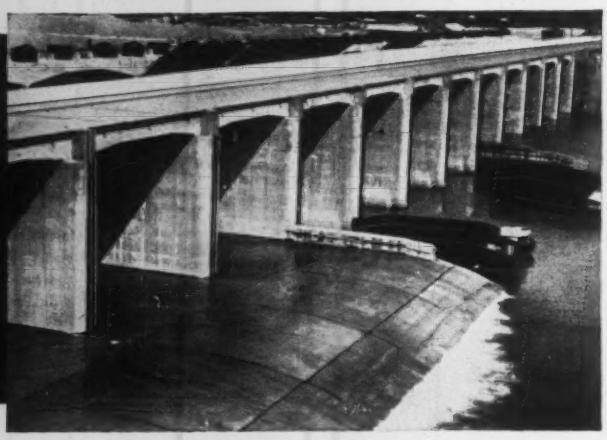
K·M
BEST IN ASBESTOS

SERVICISED POLYVINYL PLASTIC WATERSTOP DUMBBELL TYPE

EASY INSTALLATION
simple field splicing

RESISTANT TO ACIDS
alkalis, petroleum products

DUMBBELL DESIGN
for superior retention in concrete



Servicised Polyvinyl Plastic Waterstop—made from high grade polyvinylchlorides and plasticizers—is an extremely stable material that is easy to handle, install and splice in the field. It has the flexibility, durability and superior aging qualities necessary in critical waterstop applications.

Servicised Polyvinyl Plastic Waterstop is available in 4", 6", and 9" Flat Dumbbell, and 9" Centerbulb types. 4" size is supplied in lengths of approximately 100 lineal feet; 6" and 9" sizes in lengths of approximately 50 lineal feet.

Special Polyvinyl Plastic Waterstop circular has complete details and physical data. Write for it today.

QUICK, EASY FIELD SPLICING

1 Ends to be spliced are squared.

2 Place ends on heated plate and hold firmly until material begins to melt.

3 Join ends immediately, maintain slight pressure until material cools.

4 Completed splice becomes integral part of waterstop.

SERVICISED PRODUCTS CORPORATION
6051 WEST 65th STREET · CHICAGO 38, ILLINOIS

. . . New Products

to be one of its most attractive features from the builders point of view. Tests indicate that the heaviest version of the new material is still less than one-third the weight of normal concrete. Structural strength, fire resistance, high insulation and acoustical values, dimensional stability, and low maintenance costs are among the qualities attributed to the product. In addition, it can be cut, sawed, nailed and plastered says the manufacturer.

Calsi-Crete can be manufactured in different densities to meet both load-bearing and nonload-bearing requirements. Pacific Materials Corp., 6306 N. Cicero Ave., Chicago, Ill.

Portable Batching Plant Also Stockpile Conveyor

A dual-purpose, portable batching plant for ready mixed concrete, named the Challenge "Runabout," has been introduced. It batches from 30 to 45 cu yd of aggregate per hour and serves also as a traveling conveyor for stockpiling at the rate of 350 ft per minute.

One man can operate and maneuver the plant from job to job.

Equipped with a 5 lb graduated scale, the 3½ cu yd hopper is tilted downward and to the rear, and discharge of the material is controlled by double gates.

The conveyor boom has a reach of over 25 ft from the front wheels to the discharge chute, and it has an attached "boot" for close contact with the charging hopper of the transit-mixer.

Power is supplied to the 18 in. conveyor belt by an 8 hp air cooled engine.

The entire unit can be pivoted on a 30 ft radius, so that it can serve as a conveyor for stockpiling operations. Cook Bros. Equipment Co., 3334 San Fernando Road, Los Angeles 65, Calif.

Materials Spreader Has Controlled Cast Pattern

A spreader for dump truck mounting is designed for sanding, cindering or spreading stone, calcium chloride and other materials to meet a variety of applications.

The unit consists of twin-spinners with shafts that may be adjusted for any given dump truck body length. The shafts extend through sealed tubular housings and operate in oil.

Other features include a wide spread area, which can cover a three lane highway in a single pass, according to the manufacturer.

It is available in 5, 6 and 7 cu yd capacity units. Larger sizes can be ordered. Shunk Manufacturing Co., Bucyrus, Ohio.

in DENVER...
all major steel structures erected in the last four years are HIGH STRENGTH BOLTED

Using impact and holding wrenches, two-man teams can cut weeks from frame erection time.

EXCLUSIVE use of high tensile bolts in tall steel construction is a remarkable testimonial to this building improvement. Since Denver's code was revised to permit bolting as an alternate to riveting, every major steel structure, including the 28-story Murchison Tower, has been bolted.

Little wonder. Bolting cuts construction costs, makes stronger connections, is safer for the ironworker, eliminates riveting noise and complaints. It saves *weeks* of erection time on the average job.

RB&W...largest independent producer of high strength bolts for construction

RB&W high tensile bolts are a major factor in the zooming success of this new construction method. With quality conforming to ASTM A325 standards, they provide joints with optimum shear and tensile strength...assure a structure that's permanently tied together.

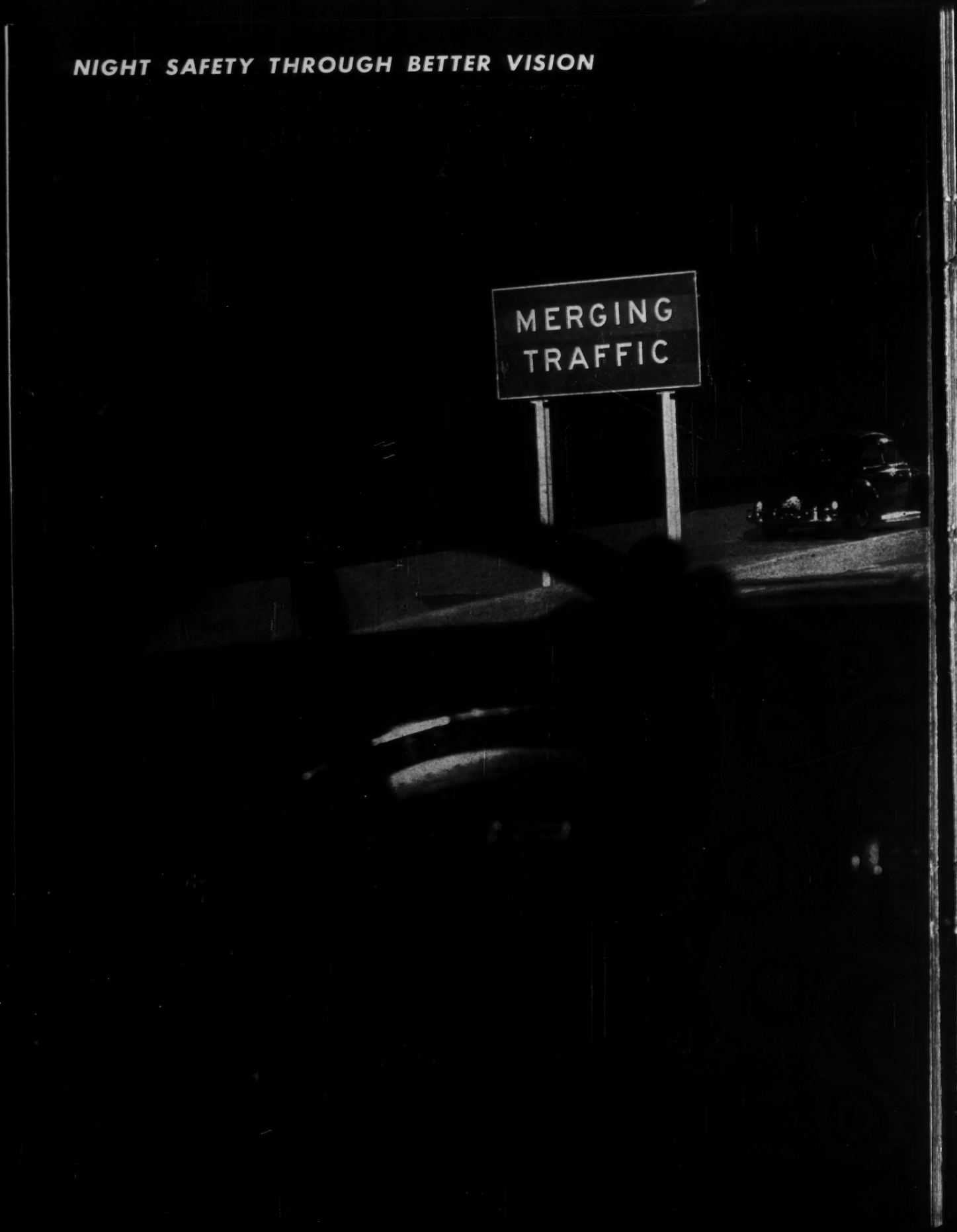
Ironworkers appreciate the clean threads that permit fast and easy finger-tightening before wrenching. Constructors approve the speed of assembly, the consistent fine quality.

See the RB&W Catalog in Sweet's Industrial Construction File...and send for this bulletin on using high strength bolts. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, New York.

R B&W
112th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver, Fargo. **Distributors** from coast to coast.

NIGHT SAFETY THROUGH BETTER VISION



He's safer . . . he'll get there sooner under modern highway lighting

You're building safety—1975-style safety at that—into your new highways. Gradual curves. Wide shoulders. Wide lanes. Median strips. Controlled access. And most of these features will also serve to increase use and capacity of your highways.

But how safe are your highways after dark?

According to a study presented to the American Road Builder's Association, 12,000 of 1954's 20,000 night traffic deaths might have been prevented by proper roadway lighting. The economic loss alone in these preventable accidents was $1.2 billion. And the toll is mounting.

The greatest single factor contributing to reduction of after-dark accidents is ***good seeing*** by drivers of motor vehicles. This good seeing, so vital at hazardous areas, is best afforded by fixed electric lighting systems.

In addition, good lighting's contribution to driver comfort encourages night driving, thus helping smooth out evening peak loads. And effective roadway capacity is increased when light makes the outer lanes less forbidding and encourages use of the full width of the road.

Cost? Moderate. People pay for good highway lighting—whether they have it or not. Accident prevention costs less than accidents.

Take the first step now in building night safety into your highways: contact your nearby General Electric Apparatus Sales Office or Agent for the latest information on highway lighting equipment and methods. Or, write for 28-page bulletin to Sec. 455-18, General Electric Co., Schenectady, N. Y.

GENERAL ELECTRIC

Lima Type 1601 Shovel equipped with a 32-ft., 6-in. boom, 22-ft. dipper handle and 4-cu. yd. bucket. Shown loading shot limestone at junction of new U. S. 40 and Rt. 202 north of Dayton, Ohio. Owned and operated by Smalley Construction Corp., Celina, Ohio.

LIMA speed, mobility and ease of control pay off for Smalley Construction Corp.

Smalley Construction Corp., Celina, Ohio, is one of the state's leading road and excavating contractors. At the present time the company is working on the relocation of U. S. 40 about 10 miles north of Dayton. This is a $4,800,000 project and entails moving 1,400,000 yards of material and laying 20 miles of 2-lane pavement.

Francis Smalley reports: "To do the big digging jobs on this operation, we purchased a Lima Type 1601 Shovel equipped with torque converter in May, 1957. Since then we have been working it on two 8-hour shifts per day, and we have been averaging 5,000 yards of material per shift, which we think is very good."

Tops in speed and mobility. "One of the best features of the shovel is the speed of operation. It has a supercharged diesel engine and, with the torque converter, you get an amazingly fast, smooth digging cycle. We also like the mobility of the shovel—both on the job and the way it knocks down for movement from job to job."

Air controls are good feature. "The air controls on the Lima make it easy to operate. This is an important feature, because it helps you keep your skilled operators, and they can do more work without fatigue."

Gets good service. "We've found that you get exceptional service when you buy Lima, both from the distributor and from the factory. This means a lot in our business."

Get the full story and you'll specify Lima for shovels (½ to 6-cu. yds.), cranes (to 110 tons), and draglines (variable). See your local distributor or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA Construction Equipment Division, Lima, Ohio

BALDWIN · LIMA · HAMILTON

Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment

BALDWIN BLH LIMA-HAMILTON

587

Hand Built Road to Bisect Formosa

A difficult roadbuilding project through mountainous terrain that prohibits the use of heavy equipment is now under way in central Taiwan (Formosa) at a cost of more than $10 million. The goal is to link the east and west coasts of this Nationalist China island stronghold.

Building the 190-mile-long road system is a hand operation. Jeeps can manage the single-lane portion of the road already opened, but beyond there work must be done without heavy machinery, and equipment supplies must be transported on foot. Rickety suspension bridges limit the load to no more than the weight of five men.

Some $6.9 million in U.S. aid will supplement $4 million from the Free Chinese Government to finance the project. One million dollars of the U.S. money will be used to import materials and equipment.

At present, there are two bulldozers and two compressors—both used at the flat west end, near Tungshih. Elsewhere, 11,000 laborers use pick and shovel, and spike and mallet to carve the highway along the edge of mountains that tower more than 10,000 ft.

The road, 16 ft wide and gravel-surfaced, runs from sea level to as high as 7,500 ft. Rivers, chasms and ravines will be crossed with 26 main bridges of prestressed concrete. Three miles of tunnels, blasted through solid limestone and marble, are the most dangerous phase in the construction, requiring 30 tons of dynamite each month. Since March, 1956, 140 workers have lost their lives—and 60 miles are yet to be built in difficult terrain.

• **Access to riches**—The east-west highway originally was the dream of the Japanese, who held the area between 1895 and 1945, when it was returned to China. Technical difficulties, in addition to the war, delayed the beginning of construction until March, 1956. It is estimated that the road will be completed by mid-1959, 190 miles including branch roads.

The 129 mile main road will link Tungshih in the west with Ilan on the precipitous cliff-lined east coast. One of the branches will link Tungshih with Hsincheng.

Traffic will move one-way. Cut-offs every three miles will enable cars to make room for passing in either direction.

The highway will open up a gateway

THROUGH SOLID ROCK, Chiang Kai-shek's construction army has hand-chipped four tunnels. The road here passes through a 1,000 ft deep gorge above the timberline.

BRIDGE PIERS RISE SLOWLY as hand tools and manpower are used to erect this approach to another tunnel. None of the 26 major bridges on the road use steel girders.

MAJOR CONSTRUCTION SITES on the 190 mile east-west highway are pointed out on the map to President Chiang Kai-shek and his wife.

To Best Meet Fencing Needs

PAGE chain link **FENCE**

offers the Widest Choice

You can choose from

—8 Fence Styles
—8 Fence Heights
—4 Fabric Metals
—2 Types Metal Posts
—Top Rail or Top Wire
—Single or Double Extension Arms
—6 Gate Styles, Many Widths

• PAGE provides a wider choice of long lasting fence fabric metals. Each has characteristics which meet individual preferences or make it more suitable to meet certain climatic or service conditions.

Galvanized Steel • Woven of time-proved open-hearth steel wire, hot-dipped galvanized after weaving to assure long service.

Aluminized Steel • By a PAGE patented process a coating of commercially pure aluminum is bonded to steel wire to provide longer corrosion resistance, yet its cost is comparable with fence fabric having shorter life expectancy.

Aluminum • Another metal in non-corrosive class. It will not rust, will not discolor materially under unfavorable conditions. Semi-flat weaving gives it exceptional strength.

Stainless Steel • This chrome-nickel fabric is immune to practically all corrosive elements. Advantageous near salt water and where air is laden with smoke, sulphur and other factory emissions.

Nation-wide Erecting Service • In more than 100 districts there are local, responsible members of Page Fence Association—the largest fence engineering, erecting and servicing organization. These experts own their own plants and equipment, carry complete stocks of PAGE FENCE materials, and operate crews of trained workmen. Each firm is permanently located and has lasting interest in every job it handles.

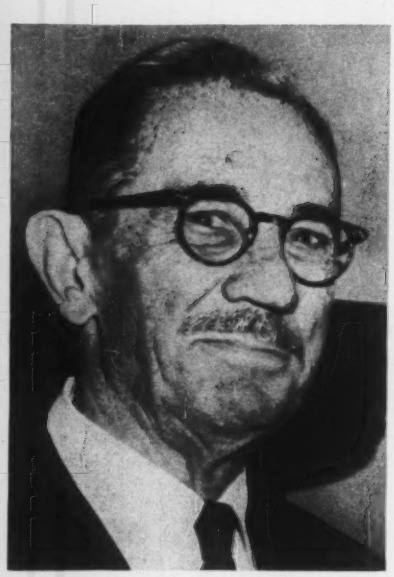
Write for file-size folder containing full information and name of member nearest you. Address—

PAGE FENCE ASSOCIATION
Dept. E • MONESSEN, PA.

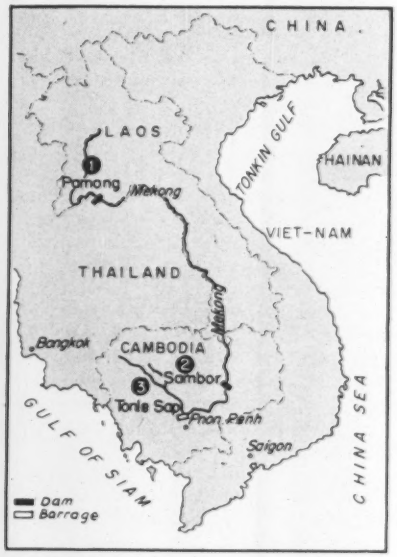
A PRODUCT OF PAGE STEEL & WIRE DIVISION AMERICAN CHAIN & CABLE COMPANY, INC.

to the central sector—now inhabited by tribes of non-Chinese aborigines and accessible only by helicopter or foot. Officials estimate that thousands of acres of tillable land and forests along the highway now will be open to exploration, as well as pasture area. In addition, another 800,000 kw of water power will be available for development through the use of the waters of the Ta-chia and Liwu rivers. This could provide an additional link in the hydroelectric system now in operation.

About 6,000 of the road workers are ex-servicemen, many of whom served with Generalissimo Chiang Kai-shek on the mainland. Nearly 6,000 more are natives of Taiwan.



LT. GEN. R. A. WHEELER is chairman of United Nations mission that is . . .



. . . Studying these three projects in Southeast Asia.

Mekong Basin Projects Studied

The United Nations has sent a technical assistance mission to Southeast Asia to help plan a TVA-type development of the Lower Mekong River Basin, which lies in Cambodia, Laos, Thailand and Viet-Nam. The mission is headed by Lt. Gen Raymond A. Wheeler, former Chief, Corps of Engineers, and man in charge of the recent clearance operations in the Suez Canal.

Headquartered in Bangkok, Thailand, the mission is making a three-month, on-the-spot study and investigation of projects. Other members of the mission are: Kanwar Sain, chairman of the Central Water and Power Commission of the Government of India; Georges Duval, director of a hydraulic laboratory in France; Yutaka Kubota, president of a Japanese engineering and consulting firm; and John W. McCammon, former commissioner of the Quebec Hydro-Electric Commission.

The mission will work with the UN Economic Commission for Asia and the Far East and review existing studies, particularly an ECAFE report prepared last year. It will examine three specific projects recommended in the report. The mission also will submit recommendations for further studies for overall development of the basin.

The three projects are: a multipurpose dam, the Pamong project, above Vientiane, capital of Laos; a multipurpose dam, the Sambor project, in the middle reaches of the river; a barrage, Tonle Sap project, that would regulate the flow of water between Great Lake near Phnom-Penh and the Mekong.

The Mekong, one of the major rivers of the world, runs some 2,600 miles and originates in the snowy mountains of Tibet. Estimates are that the basin could provide some 4 million kw.

New Zealand Pushes Plans For Its First Steel Plant

New Zealand will get its first iron and steel mill if current studies by the New Zealand Development Corp. prove encouraging.

The plant may be fully planned by 1960 and in production three years later

(*Continued on p. 66*)

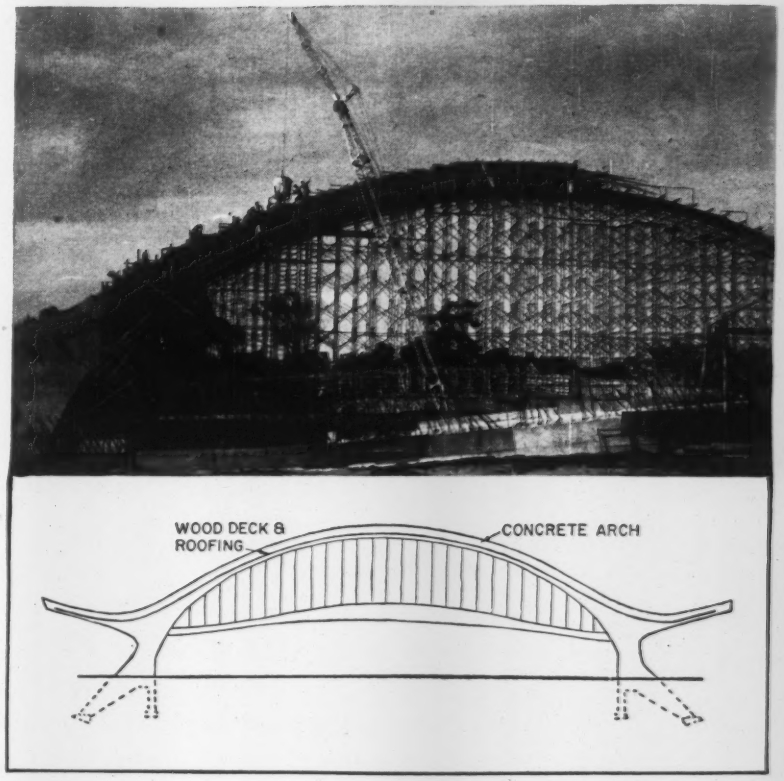
Shoring Methods . . . by Patent Scaffolding Co.

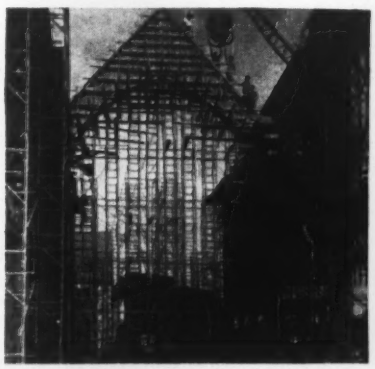
SAME COMPONENTS PROVIDE SHORING AND PLATFORMS; SPEED HUGE PARABOLIC ARCH

FOR BUILDING this huge, spine-like, 240′-long parabolic arch for the new, modern-design Yale University Hockey Rink, contractor, George B. H. Macomber Co., makes effective use of "Trouble Saver"® Scaffolding components for shoring and for working platforms.

2′-wide "Trouble Saver" Shoring units with built-in ladders support the area starting 21′ in from each end of the arch. For a distance of 32′ these units are placed 5′ apart, perpendicular to the arch length, with 6″ spacing between towers. The next 59′ is shored with 5′-wide "Trouble Saver" frames, spaced 3′7″ apart, parallel with the arch length, with 8″ spacing between towers. 475 5′-wide frames and 410 2′-wide frames are in use. Horizontal bracing is achieved by "TubeLox"® Scaffolding members and 56 steel cable guys.

A separate working platform, made of 285 5′-wide "Trouble Saver" frames, is used on one side of the arch only for easy placing and removal of forms. "TubeLox" Scaffolding members tie this working platform to the shoring for extra safety.





HIGH, HEAVY BEAM SUPPORT— Southern Bldrs., Inc., needs only 228 "Trouble Saver" Shoring ladder frames, braced with "TubeLox" Scaffolding members, to support this 50′-high, 8′-thick arched concrete beam for St. Marks Church, Shreveport, La. Built-in ladders provide quick access for workers.

QUICK, STRONG BRIDGE SHORING— Due to its high load-bearing capacity, "Trouble Saver" Steel Shoring permits Snitily Brothers, contractor, to get an entirely accurate camber section for this 2-arch (each 52′ long) underpass bridge on the new Peninsula Drive near Moses Lake, Wash. 396 shoring frames of various heights are erected quickly to support the slab thickness of 2′4″ at pier edges and 1′2″ at the 18′-high midspan points. By using versatile, prefabricated steel shoring, instead of wood, forming costs for highway bridges, overpasses and piers can be cut at least 25%. Highway Bulletin G208 gives complete facts, ask for it.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

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Gold Medal

THE PATENT SCAFFOLDING CO., Inc.

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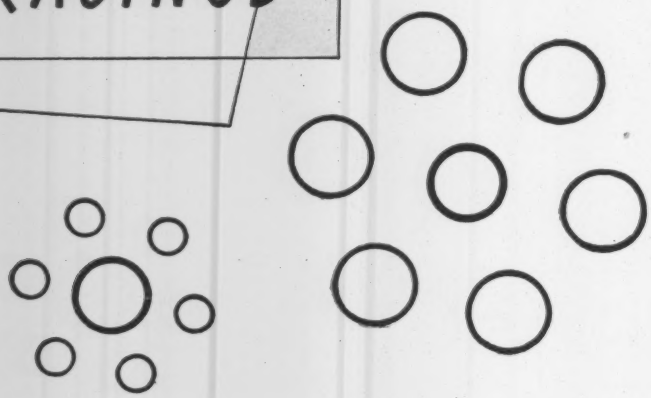
In Canada: 355 Dufferin St., Toronto
Branches in all principal cities

TRICKY TRACINGS

Question: Without measuring first, which of the two center circles is larger? See answer below.



YOU'RE ALL RIGHT IF IT'S ARKWRIGHT TRACING CLOTH

Unmatched even texture! Arkwright's flawless surface is completely free of pinholes, coarse threads, or other imperfections which cause blobbing and feathering. Its durable finish resists fraying, tearing and curling . . . its greater transparency and durable finish prevent opacity and brittleness.

A joy to use! Even after repeated erasures, Arkwright's superior working surface produces sharp, clean drawings . . . brings out the best in you whatever the project, whatever the problem. In the simple problem above, you'll find that the two circles have equal diameters.

Prove for yourself the perfect performance of the cloth with the blue line . . . Arkwright. Write for free samples today. Arkwright Finishing Co., Industrial Bank Building, Providence, R. I.

ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 35 YEARS

with an initial output of 250,000 tons of steel a year. A site has been chosen at Port Chalmers, outside the city of Dunedin, on the country's South Island. New Zealand today imports 342,000 tons of steel a year from England.

The development company was set up with $1.4 million in capital and will organize an operating company if tests prove the project's soundness. The operating company eventually may have $70 million in capital from British, Australian and New Zealand sources.

Earlier attempts to establish an iron and steel industry in the country foundered on the problem of separating titanium from native iron sands. A method now has been developed by a New Zealand scientist, and the plant will offer as byproducts titanium, thorium, vanadium, a variety of nitrogenous fertilizers and industrial gases.

Canadian Power Firm Plans a 1958 Expansion

The B. C. Electric Co. of British Columbia will spend $98.6 million on expansion during 1958, A. E. Grauer, president, disclosed recently. The company operates in the southern part of the province and throughout Vancouver Island. Projects he identified were:

- The second Bridge River development, scheduled for completion in 1959, will get $30 million, the largest single allocation.
- A gas turbine electrical generating plant at Port Mann will require $7.6 million for completion next year.
- Land clearing and other preliminary work at Ioco, where the company plans a thermal electric plant, will cost $3.2 million.
- Facilities for Vancouver Island will require $9.3 million. The total includes completion of a submarine cable to the island and construction of generating, transmitting and distributing facilities.
- Natural gas trunk lines, distribution mains and accessory plant on the lower mainland will absorb another $5.1 million.

World Bank Grants Loan For Congo Roadbuilding

The International Bank for Reconstruction and Development has announced approval of a loan equivalent to $40 million, for highway construction for the Belgian Congo.

The loan is to cover the cost of imported equipment, materials and services required for work on the highway system during the four years 1957 through 1960.

The project, estimated to cost a total

of about $70 million, involves construction of 750 miles of new highways, improvement of 560 miles of existing roads and preparation for mechanized maintenance of a further 2,060 miles. One of the new highways will provide an all-weather link between Leopoldville, the capital, and the Atlantic Ocean port of Matadi.

Canals to Be Deepened To Keep Tourists Afloat

Every tourist to Mexico City knows about—and usually takes a ride in—the flower-bedecked barges that are poled through the labyrinth of narrow tropical canals at nearby Xochimilco. What he does not know—but may suspect with his sense of smell—is that there is hardly enough water in some of the canals to float his barge. Silt deposits are the culprit.

This threat to the tourist trade now is being met by an extensive canal deepening operation in which a little 8 in. "swinging ladder" dredge, recently developed by the Ellicott Machine Corp., of Baltimore, is setting out to remove 1¼ million cu yd of silt from the 22½ miles of barge channel.

Now in service for several months, the dredge has averaged between 50 and 100 cu yd per hour depending on the type of material. Cost is said to average between 6 and 8 cents per yd. The dredge can excavate to a depth of 8 ft below the water surface, and cut a channel from 13 to 17½ ft wide at the water line in one swing of its ladder. Self propelled, it is readily moved along the narrow, winding canals.

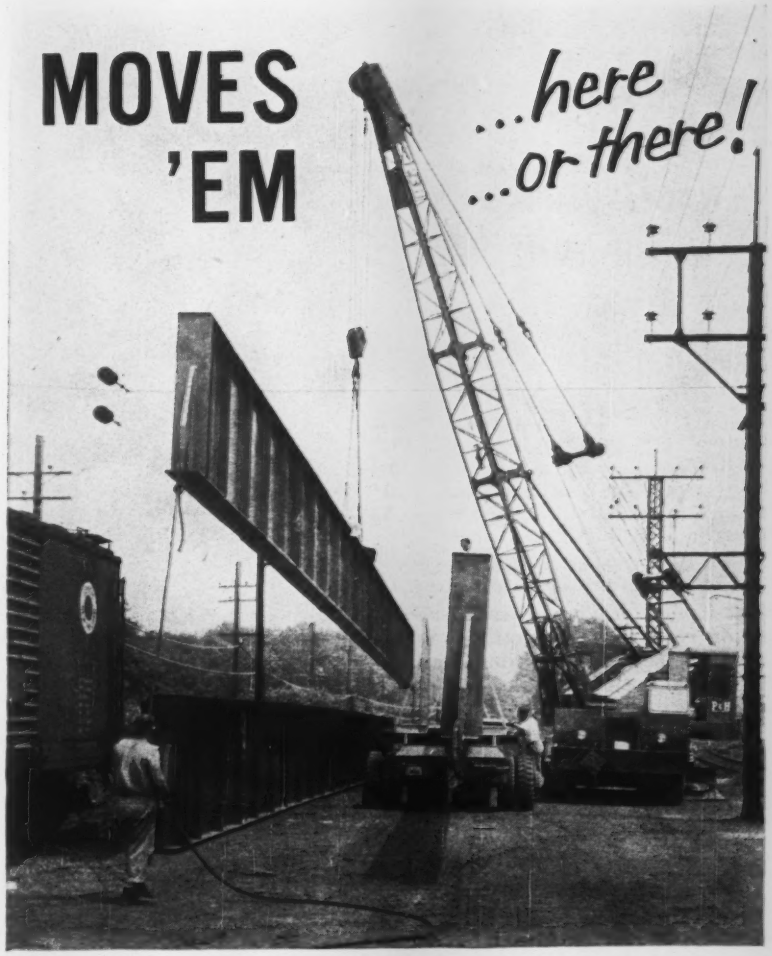
All canals, primary and secondary, which now vary in depth from 8 to 18 in., are being deepened to a uniform 5 ft depth.

German Port Is Expanded For Oil Cargo Handling

First construction stage of expansion plans for the Rhine-Lippe oil harbor in Emmelsum, Germany, have been completed.

At a cost of $4.8 million, the river port has been expanded so that it can handle an annual capacity of 4 million tons of crude oil—roughly 30% of the total 1957 crude oil handled in Germany. Part of the general plan is to further enlarge the port to an eventual capacity of 7 million tons of crude per year, as soon as demand is sufficient.

The new facilities allow simultaneous unloading of four tankers of 3,000 tons each, and include two tanks with a capacity of 6,540 cu yd each, from which the oil is pumped.

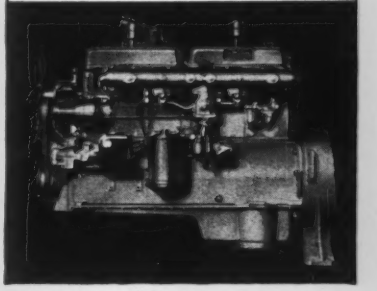


WAUKESHA Power

Loading steel beams—up to 102 ft. long, weighing almost 15 tons each—for transport from the railroad at Cos Cob, Conn., to the Nianus River viaduct site, a part of the Connecticut Thruway project. It's a P & H crane, with 55 ft. boom—Waukesha powered with a 140-GK engine—owned and operated by the Klevens Corporation of Yonkers, New York.

POWERING P & H CRANE

Waukesha 140-GK Gasoline—6-cyl., 4½ x 5½-in., 525 cu. in., 155 hp @ 2250 rpm. Send for descriptive bulletin 1548.



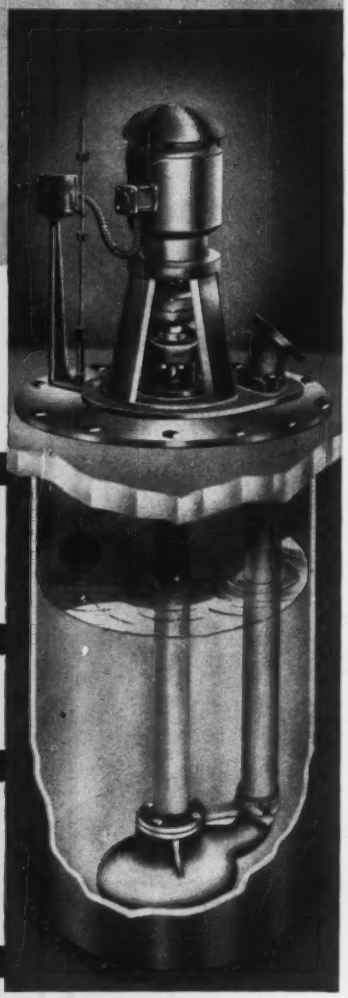
368

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

SCREENLESS PUMPS for

SEWAGE PUMPING
DRAINAGE PUMPING
with a REAL NON-CLOG IMPELLER



This HEAVY DUTY Sewage and Sump Pump with the famous NON-CLOG Impeller, effectively handles large diameter solids, rags and stringy material which are washed into the sewage pit.

RUGGEDLY BUILT

This factory assembled unit has an ample reserve of strength to meet the most severe conditions and to furnish years of trouble-free operation.

SIMPLIFIED INSTALLATION

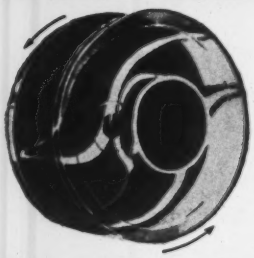
Only one piping connection required. Only one electrical connection. An ECONOMICAL installation.

CAPACITIES

A large selection of units to meet every need. Capacities to 1500 GPM; heads to 86 feet; can be supplied with 1750 RPM, 1140 RPM or 870 RPM motors; four and five inch discharges.

NON-CLOG IMPELLER

The NON-CLOG Impeller built into this Screenless Sewage Pump supplies the ideal method of pumping sewage of other unscreened liquids containing solids. This design eliminates the necessity for expensive pneumatic ejectors and various other pumps requiring screening devices.



Successfully handles the tough jobs where other pumps fail.

Pumps of this design are still operating satisfactorily after 25 years in service.

Send for Bulletin C-900 or refer to **weil** catalog in Sweet's 1958 or Domestic Engineering Catalog Directory. Weil Representatives and Weil Engineers are available to help solve your waste pumping problems.

weil PUMP COMPANY

1528 North Fremont St. • Chicago 22, Ill.

Books

Computers Made Easy

A Management Guide to Electronic Computers—By William D. Bell. 277 pp. McGraw-Hill Book Co., 330 W. 42 St., New York 36. $6.50.

Digital Computers—By R. K. Livesley. 53 pp. Cambridge University Press, 32 E. 57 St., New York 22. $1.75

As more and more books are written about electronic computers, the better they get. Two recent books, *A Management Guide to Electronic Computers* and *Digital Computers*, show decided improvement—in perspective and ease of understanding—over earlier efforts.

Mr. Bell has directed his remarks toward businessmen who might employ a digital computer for commercial-type work (and this category would include engineering and contracting organizations). As such, his explanation of the workings of a computer are quite easily understood.

Not so successful is the author's attempt to present "management questions and answers" as related to whether and how to acquire a data processing system. It is somewhat cursory and shallow. He finishes strongly, however, by effectively presenting 11 case histories of computer systems, among them inventory control, integrated accounting operations, management reporting and production scheduling.

Veteran computer author R. K. Livesley has aimed his abbreviated effort at the engineer and has concentrated on engineering applications. He actually gives the whole computer art a quick—and penetrating—once-over, covering what computers are, what they are capable of doing and how they are made to do it.

He makes a particular point of the advisibility of putting together computer programs from standard subroutines, commonly called "building-blocks."

Books and Pamphlets

Disintegration of Field Concrete—Progress Report N-1—Committee on Alkali Reactions in Concrete, 20 Borgergade, Copenhagen K, Denmark.

Boundary Control and Legal Principles—by Curtis M. Brown. 275 pp. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. $7.50.

A Treatise on Photoelasticity—Second Edition—by E. G. Coker and L. N. G. Filon. 720 pp. Cambridge University Press, 32 E. 57th St., New York 22, N. Y. $12.50.

Design of Steel Structures—by Edwin H. Gaylord, Jr., and Charles N. Gaylord. 540 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y. $8.00.

MR. ENGINEER:

LET'S FACE THE FACTS . . .

How can an underground piping system be watertight when you can't *AIR TEST* it?

Test caps applied to unit ends for air testing full-welded conduit system.

WITH

RIC-WIL

During air test, conduit field welds are checked with soap solution.

Tested and ready for lowering long lengths.

YOU can AIR TEST your system...

The RIC-WIL method of making full-welded field closures allows the installer to AIR TEST the system prior to completion and backfilling. This simple 15 lb. pressure test gives greater assurance of a tight, leak-proof system. It provides the finest practicable protection to the owner against an initial system failure ...and most important, the long range effects of water corrosion.

Ask a RIC-WIL field representative for detailed information regarding Air Test procedure or write for catalog covering recommended field installation details . . . and remember, it pays to do it RIGHT the first time . . .

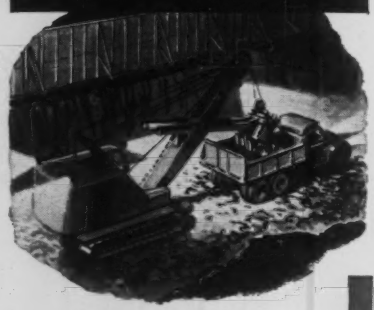
Quality Piping Systems . . .
. . . of Exceptionally High Thermal Efficiency
SINCE 1910

RIC-WIL INCORPORATED — PREFABRICATED INSULATED PIPING SYSTEMS

BARBERTON, OHIO

IN CANADA: THE RIC-WIL COMPANY OF CANADA LIMITED

KOHLER
ELECTRIC PLANTS



Reliable on-the-job power for floodlights, power tools

Kohler electric plants have won a reputation for smooth running efficiency, low-cost operation. Used on major construction projects the world over. Backed by the 84-year-old Kohler tradition of first quality products. Sizes from 500 watts to 50 KW, gasoline . . . 10 KW to 50 KW, diesel. Write for folder A-31.

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Visit the Kohler exhibit
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ANNUAL MEETING
Chicago, Jan. 26-30

Model 5MH21, *5 KW, 115 Volt AC with housing. Manual starting.*

KOHLER OF KOHLER
Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings • Electric Plants • Air-cooled Engines • Precision Controls

BPR Chief Retires

Charles D. Curtiss ends 38 year career with U. S. public roads agency

Charles D. Curtiss, 70, for the past two years U. S. Commissioner of Public Roads, and for more than 38 years an engineer on the staff of the agency and its predecessors, retired from federal service January 1.

Long in top bureau posts, and the man generally credited with developing many of the basic administrative policies on which the agency operates, Mr. Curtiss began his long career in highway work two years after his graduation from Michigan Agricultural College (now Michigan State University). He remained at the college for two years as an engineering instructor, until he joined the State Highway Department in 1913. His career was dedicated to highways from that point onward—through a two-year stint with the Iowa Highway Department under the late Thomas H. MacDonald, and even including his service with the Corps of Engineers in World War I, when the then Capt. Curtiss was in charge of highway work in France.

Mr. Curtiss joined Mr. MacDonald in the federal government's highway agency in 1919. He became chief of the Division of Control, and became Commissioner in January of 1955. Since that time he has carried the BPR through initial stages of the mammoth roadbuilding program touched off by the Federal Aid Highway Act of 1956.

In addition to his role in the BPR, Mr. Curtiss has been a member of a number of major policy-making committees of the American Association of State Highway Officials, the Highway Research Board, and the National Academy of Sciences. He is a holder of the George H. Bartlett Award—highest honor among highway men.

Two States Announce Major Personnel Changes

Changes in major state highway department posts were made or underway in three states last week.

In Pennsylvania, Henry D. Harral, of Harrisburg, was sworn in as chief deputy secretary of the Department of Highways. Establishment of the new office some months ago brings Mr. Harral, a civil engineer, to the Highway Department after extensive experience in highway engineering and municipal planning. Until his appointment, he has been supervisor of municipal assistance in the Institute of Local and State Governments at the University of Pennsylvania.

For the second time since the death of Charles H. Purcell six years ago, a non-engineer has been picked by Gov. Goodwin J. Knight to head the California State Department of Public Works, which includes the divisions of highway and architecture. He is C. M. Gilliss, an accountant, who for the last two years has been deputy director of the department.

And in New Mexico, the office of deputy chief highway engineer was vacated with the dismissal of Ira B. Miller from the post. Chief Highway Engineer Lawrence D. Wilson, who said Mr. Miller's dismissal was "in the best interests of the department", immediately named H. F. Leslie to succeed Mr. Miller.

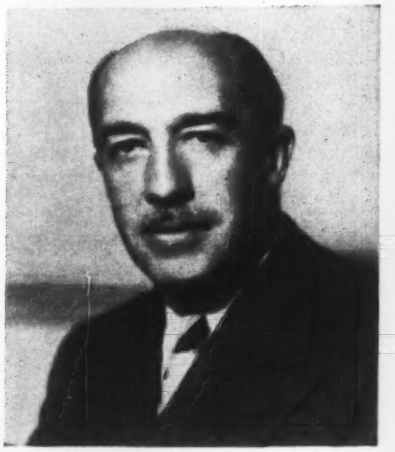
Stephen W. Benedict

Benedict Named President Of Master Builders, Inc.

Stephen W. Benedict has been elected president of the Master Builders, Inc., a division of the American-Marietta Co. He succeeds Edwin L. McFalls, who is retiring. At the same time, Mr. Benedict was named vice chairman of the board of directors of Master Builders Co., Ltd., of Canada.

A civil engineering graduate of the University of Illinois, Mr. Benedict served as structural research engineer with the National Advisory Committee for Aeronautics and was a materials engineer for 10 years with the National Bureau of Standards before joining Master Builders in 1948.

Mr. Benedict moved along steadily with Master Builders since beginning with the company as director of research. He became vice president for research and engineering in 1955 and was elected vice president in 1956, a position he held until his recent appointment.



Edwin R. Akers

Edwin Akers Named to Snare Corp. Presidency

Edwin R. Akers will become president of the Frederick Snare Corp., New York City contract engineers, on Jan. 1. He succeeds George P. Seeley, who will become assistant to the chairman of the board of directors. Mr. Akers has been a vice-president of the firm since 1948.

Mr. Akers has been with the Snare firm since shortly after his graduation in 1918 from the University of Michigan, where he obtained a B.S. degree in civil engineering. He has handled some of the company's biggest jobs, including air and naval bases for the U. S. in the Azores and at Guantanamo, Cuba, the latter being still in progress.

Also on Jan. 1, John F. Myslik, assistant secretary and assistant treasurer, will become secretary and treasurer. He succeeds Harry O. Ware, who retires.

Arthur W. Buttenheim continues as chairman of the board of directors.

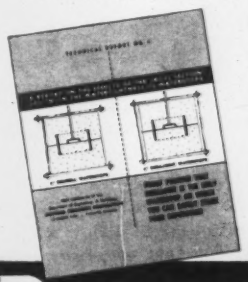
Folsom Is Named President Of Rensselaer Polytechnic

Richard G. Folsom, at present director of the Engineering Research Institute at the University of Michigan, has been named president of Rensselaer

NOW...YOU CAN SOLVE YOUR WATERSTOP PROBLEMS IN A SCIENTIFIC MANNER

In the past, smooth surfaced waterstops have been used in concrete structures in the belief that they will effectively eliminate leakages resulting from water percolation around the waterstop. It has been a common practice to specify 6" waterstops for "small jobs" and 9" waterstops for "big jobs" . . . this practice was not based on the results of any scientific analysis. A series of tests have now been conducted by the Ontario Research Foundation in order to determine how the functional performance of DURAJOINT Waterstops, 4" and 6" wide, will compare to the functional performance of Dumbell Type Waterstops, 6" and 9" wide, when embedded in concrete and subjected to hydrostatic pressures of various magnitudes.

The tests provide positive proof that it takes the right combination of PVC material and multiple-ridge cross section design, found only in DURAJOINT, to stop water under all joint conditions that are likely to exist. The tests also proved that the 4" wide DURAJOINT Waterstop is far more effective than the 6" wide Dumbell Waterstop and the 6" DURAJOINT Waterstop is also far more effective than the 9" wide Dumbell Waterstop.



Be sure to investigate these interesting results yourself...send the coupon (below) today, for your free copy of the NEW DURAJOINT Technical Report No. 4. Contains complete technical data, graphic illustrations as to how the performances of waterstops compare, and actual copies of the test reports. If you are interested in waterstops, this report should prove to be one of the most interesting technical manuals you've ever read.

DURAJOINT TECHNICAL INFORMATION Center
121 HILL AVENUE · AURORA, ILLINOIS

DEPT. 10

Gentlemen:

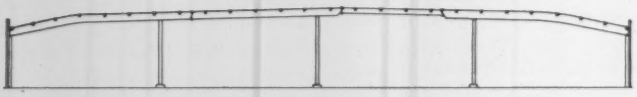
☐ Please send, without obligation, my free copy of Technical Report No. 4.
☐ DURAJOINT Catalog No. 457.
☐ Have representative call.

NAME_____
FIRM_____
ADDRESS_____
CITY_____ STATE_____

50-foot bay of 200′ x 500′ warehouse of Holman Transfer Company, Portland, Oregon. Cost averages $3.00 a square foot including sprinkler system. Architect: G. K. Cochran, Portland. Contractors: Monson & Sivers, Portland.

low roof lines

WITH DRAINAGE OF AN ARCHED ROOF



This truly economical warehouse provides clear, moderately wide bays with the efficient roof drainage of an arched surface. But there is not an inch of waste space overhead to increase wall height or to create the expense of heating and cooling unusable space.

In consultation with Timber Structures engineers, the architect designed glulam beams with curved end members which accomplish these cost-saving results. No maintenance will be required, and resistance to destruction by fire is among the best of all unprotected materials. Cantilevered beam arrangement decreases section dimensions and lowers costs.

Other units of engineered timber construction available at Timber Structures, Inc. include arches, rigid frames, domes, trusses and columns. All are expertly laminated of dimensionally stable timber, precision fabricated for fast erection, and backed by the responsibility of the world's largest manufacturers of engineered structural timbers. For detailed information and working data, ask your nearest Timber Structures representative for the booklet "Buildings for Tomorrow", or write directly to us.

SEE OUR CATALOG IN SWEET'S INDUSTRIAL CONSTRUCTION FILE OR WRITE FOR COPY

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Offices in Ramsey, N. J.; New York City; Boston; Philadelphia; West Hartford; Cleveland; Charlotte; Chicago; Centerline, Mich.; Kansas City; St. Louis; Minneapolis; Des Moines; Wichita; Memphis; Dallas; Houston; Birmingham; Seattle; Spokane; Denver.
Local Representatives throughout the United States and Canada

Polytechnic Institute, Troy, N. Y., and will begin his new duties in March.

Livingston W. Houston, 67, the retiring president, will assume the newly-created honorary position of chairman of the Board of Trustees.

Mr. Folsom, 50, who holds bachelor, master and doctorate degrees in mechanical engineering from California Institute of Technology, has been professor, researcher and administrator at Caltech and Michigan since his undergraduate days.

A few days after the new president's election, RPI announced that a $6 million Science Center would be built on the Troy campus, with construction slated for a 1958 start. Architect is Voorhees, Walker, Smith & Smith, New York City.

Careers

Business

Charles E. Spahr, a graduate civil engineer (University of Kansas, 1934), has been elected president of The Standard Oil Co. (Ohio). Mr. Spahr has been executive vice president since 1955. During World War II, as a Corps of Engineers officer, he supervised construction of one of two major pipelines in the India-Burma theater.

George L. Jordy has been appointed senior consultant and **R. W. Huysman** named manager of the chimney division, Rust Engineering Co., Pittsburgh.

Callix E. Miller has been promoted to staff manager of project planning for the International Minerals & Chemical Corp., Chicago.

Lloyd Kniffin, director of public works at Milford, Conn., has been appointed first director of the enlarged public works department of Niagara Falls, N. Y. David Mann, who has been acting director will become superintendent of the construction maintenance division of the enlarged department.

Leslie Krajcsovics has joined the electrical engineering department of Cornell, Hayes & Merryfield, consulting engineers, Corvallis, Ore. He was formerly on the staff of the Electrical Energy Control board of British Columbia.

Associations

The Asphalt Institute has elected **D. Hugh Jenks** of Ashland Oil & Refining Co., Ashland, Ky., as chairman of the board, succeeding **Robert O. Wilson.** Named as treasurer was **J. J. Tumpeer** of Witco Chemical Co., New York City.

Wesley D. Alcorn has been appointed district engineer of the Asphalt Institute for the Illinois area.

Better Protection Against Corrosion

Fasteners stay on the job for longer periods of time, and in virtually all kinds of atmosphere, when protected against corrosion with Bethalume—Bethlehem's hot-dip coating of pure aluminum.

The Bethalume coating resists corrosion for long periods because it is vastly superior to other types of hot-dip coatings. The Bethalume coating is applied to the base steel by a special technique, providing a corrosion-resistant surface which is unusually uniform over the entire area of the article. As a result, threads are cleaner and sharper than is the case with other hot-dip coatings.

Because of its uniformity, plus the superior corrosion resistance of aluminum, the Bethalume coating has the ability to provide exceptional service just about anywhere—even in high-temperature corrosion applications.

Like to look into the service life of Bethalume-coated fasteners in corrosive atmospheres? If so, just drop a line to the nearest Bethlehem sales office.

Showing the uniformity of the Bethalume coating at root and crest of threads.

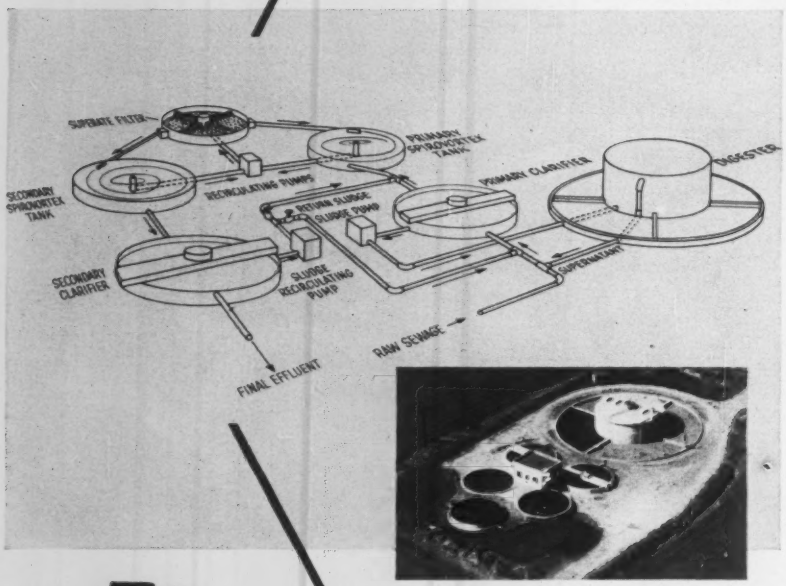
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

IT'S NEW / It's from DORR-OLIVER



THE SPIROVORTEX SYSTEM
Incorporating The Superate Filter

A radically new and different approach to the treatment of domestic sewage and industrial wastes, the Dorr-Oliver SpiroVortex System contains many definite and proven advantages. It is especially suited where 90% B.O.D. removals are required. The headaches caused by bulking of sludge are eliminated as this new System produces an excellent settling sludge, regardless of whether the plant is overloaded or is operating under normal conditions. The high recirculation ratio over the Superate Filter means greater ability to handle changes in raw sewage characteristics under shock load conditions.

For a more complete picture of how the new Dorr-Oliver SpiroVortex System operates, write for a copy of Bulletin No. 7314 — just off the press. Dorr-Oliver Incorporated, Stamford, Connecticut.

SpiroVortex System and Superate Filter are trademarks of Dorr-Oliver Incorporated

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SIMPLEX Center Hole Hydraulic PULLERS
Perfected for
PRESTRESSING CONCRETE

Self contained and Remote controlled pumps and rams in capacities 10-100 tons
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Obituaries

Jack A. Killalee, 58, veteran highway engineer and one-time head of research and planning for the U.S. Bureau of Public Roads' Western Headquarters office, died November 17 in Burlingame, Calif.

Harry T. Roderick, 59, architect, died November 6 in Columbus, Ohio. He was responsible for the design of the original Battelle Memorial Institute building and other structures in Columbus.

George E. Teagle, 69, senior partner in the general contracting firm of Teagle & Son, Toronto, Ont., died November 18 in Toronto.

Murray W. Sarr, 58, an associate civil engineer in the New York State Department of Public Works, died November 6 in Albany. He was a graduate of Rensselaer Polytechnic Institute.

Roy T. Earley, 58, contractor of Tacoma, Wash., died November 11. He was president of the Roy T. Earley Construction Co., engaging in building and heavy construction.

Brig. Gen. S. Frank Nolan, 83, city engineer of Providence for nine years, died November 14. He entered city employment in 1891 after graduating in engineering from the Rhode Island School of Design. He was made maintenance superintendent of the city water department in 1920 and city engineer in 1927. He retired in 1946. He rose to the rank of brigadier general, beginning with his commission as a captain in the state National Guard in 1910 and service as a battalion commander with the 71st Coast Artillery in France in 1918.

Samuel T. Jackson, 73, Indianapolis civil engineer, died November 18. He had been a member of the engineering staff of the New York Central Railroad for 40 years.

Alfred Liebmann, 86, died November 25 in New York City after a career as civil engineer, contractor, brewery constructor and brewer. He was the grandson of the founder of Liebmann Breweries, Inc., in New York, a firm he came to head after spending many years in engineering work. In 1930, he retired as an officer of the Gahagan Construction Corp. and Gahagan Dredging Corp., firms that he had founded with the late W. H. Gahagan. Mr. Liebmann received his degree in civil engineering from the Columbia College School of Mines in 1893.

William S. Lozier, 81, the retired president of William S. Lozier Co., Rochester, N. Y., consulting civil and sanitary engineers, died December 6. He was a graduate of Rensselaer Polytechnic Institute and formerly taught as assistant professor of engineering at New York University .

F. Emerson Hear, 80, retired consulting engineer, died December 8 in San Francisco. He was noted for studies of the economics of electric power system interconnection and of the development of the upper San Joaquin River in California for power and irrigation. He was a retired lieutenant colonel in the Corps of Engineers and for two years after World War I was associated in a consulting practice with Gen. George Goethals of Panama Canal fame.

Harry N. Milgram, 56, chief engineer of the Bureau of Highways and Sewers of the Brooklyn, N. Y., Borough President's Office, died December 11 in Brooklyn. Mr. Milgram, a civil engineering graduate of City College of New York, had been with the office for 30 years.

Leonard S. Tully, Sr., 57, former assistant city engineer in Gadsden, Ala., died December 8 in Lexington, Ky. He also had served as a civil engineer with the Louisville & Nashville Railroad.

Joseph Perkins, 71, a former director of city utilities in High Point, N. C., died December 13. He was superintendent of the Douglasville, Ga., water department prior to going to High Point in 1920.

Earl P. Wilsey, 64, engineer, died November 15 in San Mateo, Calif. He was president of the municipal and industrial engineering firm of Wilsey & Ham, Millbrae, Calif. He was a graduate of Oakland Polytechnic College and at one time served as city manager of Hillsborough and San Mateo.

Prof. Ernest Wilby, 89, architect and originator of the concrete pier and steel sash type of industrial construction, died December 12 in Windsor, Ont. During his lifetime he supervised construction of Henry Ford's Highland Park plant, the Hill Auditorium at Ann Arbor, Mich., and the Detroit News Building. He taught architecture at the University of Michigan from 1923 to 1929, moved to Canada in 1930 and received a fellowship in the Royal Architectural Institute of Canada in 1946.

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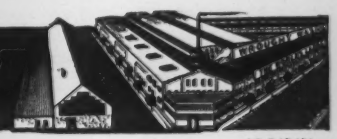

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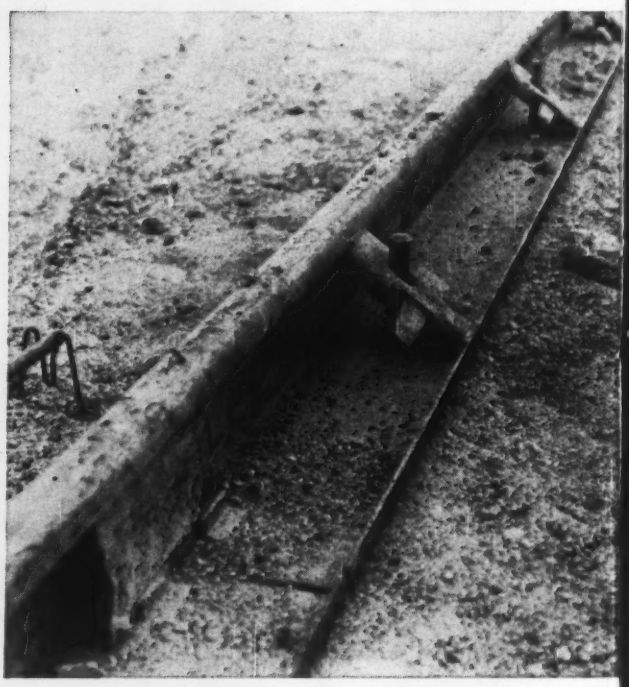

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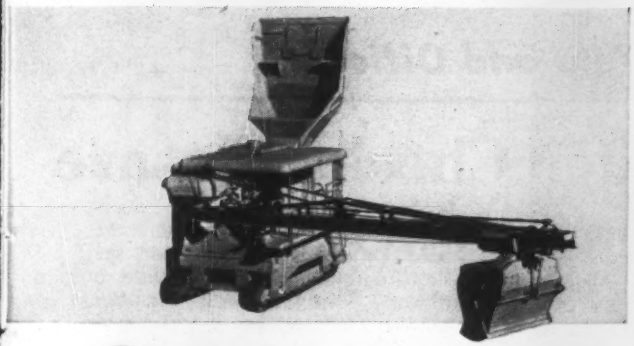

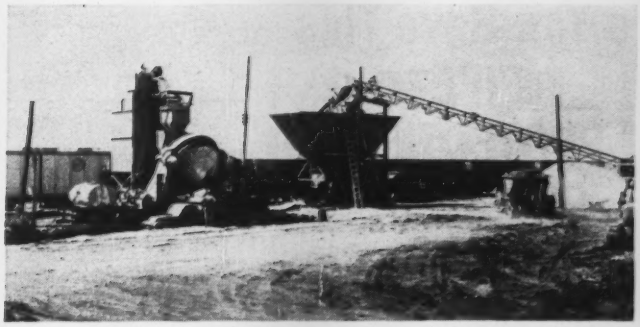

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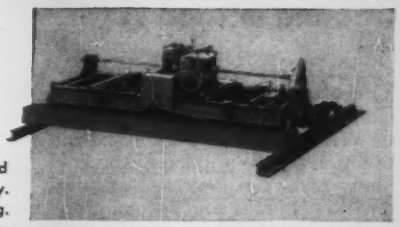

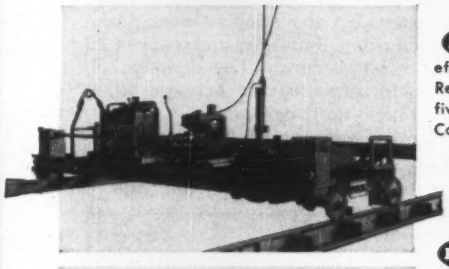

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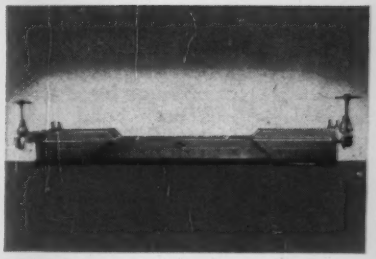

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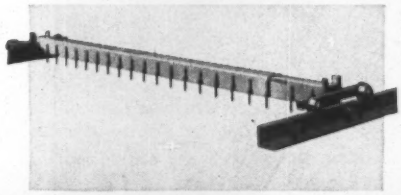

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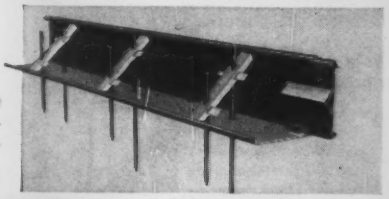

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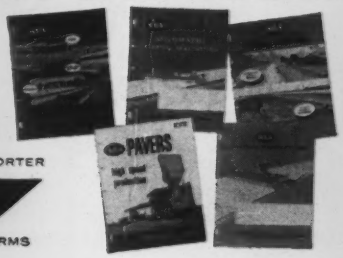

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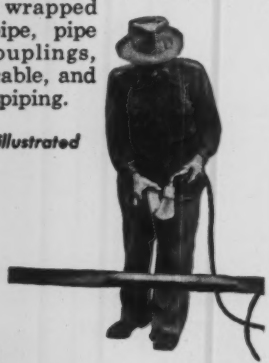
Underground piping must be protected against destructive forces of corrosive soils and electrolytic conditions. Normally, coal tar coating as called for in AWWA specifications C-203 and C-204 would be hot-applied at a coating mill. However, there are times when the volume of pipe involved or the distance of a coating mill make this impractical from a time and cost standpoint.

You'll find the ANSWER with TAPECOAT® . . . the Quality Coal Tar Coating in Tape Form

TAPECOAT is the widely-accepted alternate material that is equivalent to mill-applied hot coal tar protection. With this easy-to-use material, protection can be applied in the field by your own men, because technical know-how, kettles and special crews are not required. You save time and money while providing the long-life protection called for.

TAPECOAT is easily applied, using a torch to soften or bleed the pitch which gives both bond and protection. Available in widths from 2" to 24", it is spirally wrapped or cigarette wrapped around pipe, pipe joints, couplings, conduit, cable, and insulated piping.



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Computer Checks Closure

Another construction "spectacular" is scheduled to take place during a 24 hour period next summer. Oahe Dam on the Missouri River, the world's largest earthfill, is to be closed by dumping rock in a narrow channel faster than the river can carry it away.

The operation will be a mammoth one. The contractor is required to place 2,500 cu yd per hour of soft shale in the breach until it is closed to a height of about 16 ft. Material will be directly excavated rather than stockpiled. Closure also is made difficult by the location of the new water passage—the inverts of six regulating tunnels are all above normal river stage.

Planning the big show is also, relatively speaking, a mammoth operation. To optimize the scheme and minimize the risks, the Omaha District of the Corps of Engineers had to consider 35 variables, only 13 of which held constant for a given set of conditions. A thoroughgoing study required the testing of 120 different conditions, which translated into one man-year of engineering desk calculator time. Here, thought the Corps, was one of the few one-shot engineering problems suitable for solution by an electronic computer.

• **Fast programming**—It turned out that the designers were more than right. A computer program was developed in just two days, with debugging requiring one more day. All the calculations were made in 12 hours of machine time.

Prior to using the computer, the Omaha District had to settle on the basic closure method. The Stage 6 earthwork contract—which includes closure—requires moving 25 million cu yd of shale and overburden in two years, and consequently will necessitate a massive turnout of equipment. Oahe Dam has wide shale berms upstream and downstream to stabilize the rolled earth embankment. These conditions were conducive to overpowering the river by brute force.

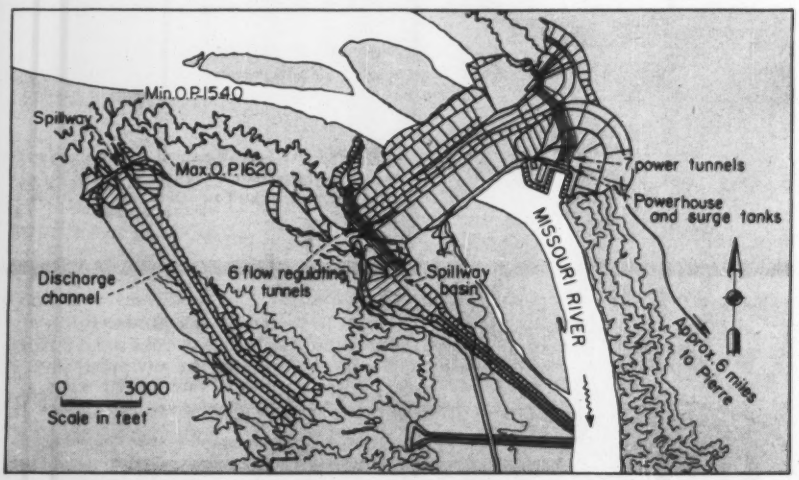
The computer helped the Corps to decide the key numbers in the scheme—length of channel through the dam to be closed and rock placement rate—which would best cope with the widest range of variables.

• **Variables considered**—Principal variables to be guarded against are closure material and river discharge. The Pierre shale to be used is a soft, light rock weighing about 125 lb per cu ft, subject to wide gradation in excavation. Various proportions of sizes between 6 in. and 2 ft were considered.

River flow can be controlled somewhat from Garrison Dam 330 miles upstream, but the reach between Oahe and Garrison drains an area subject to sudden heavy rains. The designers allowed for flows varying between 4,000 and 15,000 cu ft per sec.

Most significant of the known variables were these:

• **Materials handling**—Shale place-



AT OAHE DAM, spectacular closure will be made by dumping 2,500 cu yd of rock per hr in a narrow channel through the dam over a 24 hr period. Regulating tunnels will pass flow.

at Oahe Dam

ment rates of 1,500 to 4,000 cu yd per hour were considered.

• **Length of trough**—The shorter the channel, the more quickly it can be filled. But a shorter trough also translates into steeper face slopes, which erode faster. Lengths of 100 to 1,200 ft were considered.

• **Pool buildup**—As the channel is narrowed, level of the pool will build up with conflicting effects. Higher pool means greater water velocities, which increases erosion. But the narrowing channel means less discharge, which reduces erosion.

• **Closure scheme**—Final diversion plan calls for filling a 600 ft long channel through the downstream berm of the dam with shale at the rate of 2,500 cu yd per hour. With Garrison Dam pinching down normal river discharge of 30,000 cfs, a hoped-for 7,000 cfs flow at Oahe should allow closure to be matle within 24 hours. As a safety measure, a 900 ft long trough will be prepared, but only 600 ft will be used at first. If the contractor gets into trouble, he then will dump over a longer channel length.

Oahe's six 18½ ft dia (and 3,000 ft long) regulating tunnels have their inverts set between El 1,425 and El 1,455 on 6 ft intervals. Average riverbed at the closure location is El 1,414. River stage at normal 30,000 cfs flow is El 1,425; at 7,000 cfs flow it is El. 1,420.

The river is to be stopped after one day by a closure section dumped to El 1,430. After the river is choked off, a larger rock section will be inserted within the limits of the upstream berm to El 1,450 in three days. Then this will be extended downstream to gain El 1,490 in 13 days, which will permit the normal river flow and provide a safety margin against flash floods. When it is completed, Oahe Dam will crest at El 1,660.

Closure plans were conceived by J. N. Gau, with the assistance of hydrologic and hydraulic studies by H. S. Kidd and A. S. Harrison, all of the Omaha District headed by Col. David Hammond. Computer specialists from the Missouri River Division set up that phase of planning work.

The big show next summer—probably in August—will be put on by Western Contracting Corp., recently successful low bidder for Stage 6 earthwork at $8.9 million.

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Adlake Projected Windows Available with panes projecting inside or out. Vents are weatherstripped.

Adlake Double Hung Windows Minimum air infiltration, no water intrusion, and noiseless, fingertip operation.

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1184 North Michigan, Elkhart, Indiana

Water Project Bids 6.1% Below Estimate

Three contracts for Wayne County, Michigan water supply total $11,097,000; Canadian labor and materials involved

Three contracts for the Wayne County, Mich. water supply totaled $11,097,000, 6.1% below estimate of the engineers, Parsons, Brinckerhoff, Hall and Macdonald, New York, and the Wayne County Board of Road Commissioners.

The successful bidders on this project were:

	Amount	%
A. S. Wikstrom—Section A Water intake shaft, including transition section of tunnel and 200 ft of 12′ dia river tunnel east of International Boundary	$2,825,250	25.6
James E. McHugh—Section B Shore shaft, including transition section of tunnel, Grassy Island stub tunnel, and 5,260 ft of 12′ dia river tunnel west of International Boundary	2,359,400	21.2
Garavaglia, Fattore & Santucci—Section C and Low Lift Caisson 15,745 ft of 12′ dia land tunnel and connecting shore shaft	5,202,350	46.8
Low lift caisson	710,000	6.4

This project, on the lower Detroit River near the cities of Wyandotte, Lincoln Park and Allen Park, southwest of Detroit, has a tower-type water intake structure in the main current of the Detroit River.

The one-mile tunnel section is in rock under the river, and the three-mile section is in clay from riverbank to treatment plant site.

Acceptance of the bids was delayed by a temporary court injunction dismissed October 25 by Judge Ward H. McCree.

The contractors furnish all materials. These can be delivered by water, truck or rail. The railhead is one mile from the site.

The intake Section A, on the Canadian side of International Boundary requires Canadian materials and supplies or high duty. All Canadian labor also will be used on this section.

Prevailing Canadian wage rates in the area includes:

Carpenters, $2.45 plus 60¢ a week fringe benefits; common labor, $1.86; skilled labor, $2.06; ironworkers, $2.55 plus $1.50 a day for travel.

In addition, all have a 4% vacation allowance.

Wages prevailing in the Detroit area include:

Carpenters, $3.65; structural iron workers, $3.82½; tractor operators (including bulldozers), $3,60; common labor, $2.83.

All of these classifications include fringe benefits.

This is how the bidding on this project went:

Section A

1C	A. G. Wikstrom, Skaneateles, N. Y	$2,825,250
2	Dravo Corp., Toronto, Canada	2,947,500
4	Garavaglia, Fattore & Santucci, Detroit	3,632,200

Bids: 9-11-57 Items	Unit	Quantity	Unit Prices 1C	2
Intake structure, compl shaft, incl trans section of tunnel compl exc grout	ea	1	$2,636,500	$2,590,000
River tunnel, conc lined 12′⌀ from intake shaft to International Boundary	ea	1	75,000	142,000
Cement for grout	lf	200	500.00	1,000
Sand for grout	bbl	500	25.00	30.00
	cy	50	25.00	10.00

Section B

1C	James E. McHugh, Chicago, Ill	$2,359,400
2	Frank J. Knight Co., Detroit, Mich	2,361,600
6	Michigan Sewer Constr. Co., Detroit	3,337,000

Bids: 9-11-57 Items	Unit	Quantity	Unit Prices 1C	2
Shore shaft, incl trans section of tunnel, compl exc grout	ea	1	$161,400	$300,000
Grassy Isl stub tunnel, compl exc grout	ea	1	10,000	7,800
River tunnel, conc lined 12′⌀, from shore shft to International Boundary	lf	5,260	400.00	380.00
Cement for grout	bbl	5,000	15.00	10.00
Sand for grout	cy	500	6.00	5.00
*Conn of shore shaft to land tunnel, comp	ea	1	6,000	2,500

Section C and Low Lift Caisson

1C	Garavaglia, Fattore & Santucci, Detroit	$5,912,350
2	S. A. Healy Co. and Gargaro Co., Detroit	7,619,565
3	Michigan Sewer Constr. Co., Detroit	8,637,500

Bids: 9-11-57 Items	Unit	Quantity	Unit Prices 1C	2
Land tunnel, conc lined, 12′⌀	lf	15,745	$330.00	$437.00
*Conn land tunnel to shore shaft, compl	ea	1	6,500	14,000
Low lift caisson	ea	1	710,000	725,000

* The Wayne County Board of Road Commissioners reserves the right to deduct this work without recourse

Completion: 24 calendar months

Asphalt Concrete Canal Relining in Yakima, Wash.

Yakima Cement Products Co., Yakima, Wash., with a bid of $5,250, the low out of three and 19.1% below the estimate of the Project Construction Engineer, Bureau of Reclamation and 12.3% below the high bid will resurface with asphaltic concrete, a section of the Yakima Ridge Canal, part of the Yakima Project in the State of Washington.

The contractor furnishes and applies all materials.

Bidding went like this:

1C	Yakima Cement Products Co., Yakima, Wash	$5,250
2	DeAtley Paving and Crushing, Inc., Yakima	5,470
3	Morrison & Company, Inc., Walla Walla, Wash	5,990
EE	Project Construction Engineer	6,490

Bids: 6-19-57 Items	Unit	Quantity	Unit Prices 1C	2
Asph emulsion for prime coat	t	1	$60.00	$100.00
cement, AP-8, for tack coat	t	1	65.00	100.00
for asph conc		20	45.00	45.00
Asph conc plant mix resurfacing	t	270	20.00	15.00

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, Dec. 12; Next, Jan. 16
- Wood Products, Glass, Explosives, Chemicals: Last, Dec. 19; Next, Jan. 23
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Dec. 26; Next, Jan. 30
- Wage Rates, Building Board, Lath, Insulation: Last, Jan. 2; Next, Jan. 30

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in." truckload del." per block		CONCRETE Ready Mixed 1:2:4 del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.35am	$3.94am	$3.60m	$2.28	$2.28	$2.50‡a	$2.18	$2.33	$1.55	$1.65	$0.175	$ .21	$14.50g
Baltimore	4.45a	4.05a	3.52a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.30/13.80
Birmingham	4.23	3.30f	.....	2.53n	2.53n	2.13n	2.75	2.75	1.55	1.65	.18	.18	12.55
Boston	5.75ei	4.67a	4.79a	3.00am	3.00am	3.00am	1.75am	1.85am	.....	.....	.23	.275a	15.00h
Chicago	4.13ag	3.72a	3.80/3.93	3.78‡b	3.78‡b	4.13‡b	3.95‡b	3.95‡b	2.25‡	2.25‡	.25	.25b	14.00p
Cincinnati	4.46c	4.05c	4.03c	2.29‡c	2.34‡c	2.34‡c	2.64‡c	2.64‡c	1.89	1.89	.19	.24a	13.25
Cleveland	N.A. in C.L.	.....	3.88c	2.15ef	1.95f	1.65	4.50‡a	4.50‡a	3.35‡a	3.35‡a	.....	.23	16.15
Dallas	3.55a	3.15a	3.43	2.60	2.65	1.90	2.43	2.63	.....	.....	.....	.27	12.00
Denver	4.69a	4.19a	4.69	1.90	2.05	1.20	.....	.....	.....	.....	.22	.245a	10.70
Detroit	4.10a	3.60ag	3.73ag	4.50‡b	4.50‡b	4.25‡b	3.75‡	3.75‡	3.50‡	3.50‡	.23	.24a	14.20
Kansas City	4.45a	3.96a	4.25a	.....	.....	1.70‡a	2.00‡a	2.00‡a	.....	.....	.22a	.26e	13.25
Los Angeles	5.12ak	4.68ak	5.60	2.56‡a	2.76‡a	2.41‡a	2.41‡a	2.46‡a	.....	.....	.14‡m	.24m	12.95hk
Minneapolis	4.44a	4.04a	4.10a	2.70‡ag	2.70‡ag	1.60‡ag	3.75‡ag	3.75‡ag	.....	.....	.19	.....	14.30f
Montreal	3.21d	2.95d	3.60	1.95‡a	2.20‡a	2.25‡a	1.95‡i	2.20‡i	2.00	2.00	.20	.20a	10.80ek
New Orleans	3.75a	3.45a	3.70	2.44	2.44	2.00	.....	.....	1.45	1.65	.275	.....	13.65
New York	4.83a	4.42a	3.72	3.20bk	3.20bk	2.30bk	3.10bl	3.10bl	.....	.....	.250n	.276b	17.40an
Philadelphia	4.57‡a	4.16‡a	3.61‡	2.85‡a	2.85‡a	2.35‡a	2.70‡	2.80‡	2.00	2.35	.25/.32	.....	14.15do
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.80aq	2.60aq	3.00aq	2.00e	2.00e	2.20	2.20	.26	.28	15.80
St. Louis	4.16/4.48c	3.76/4.08c	3.86/4.18	3.25am	3.10am	2.40/3.10am	1.65j	1.75j	.....	.....	.24	.30c	12.65/13.15
San Francisco	4.09c	3.69c	4.53c	2.02	2.02	2.12	2.17	2.17	.....	.....	.24	.24el	12.75c
Seattle	4.27a	3.75a	4.45a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	.....	.....	.26	.37c	13.90g
Toronto	4.03a	4.02a	4.03a	2.40‡	2.40‡	2.05‡	2.20	2.20	2.20	2.20	.26	.275a	15.25

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add 14.58 to $21.31 per car switching charges *g fob mill + freight *h LCL. *i Less 2% disc, 10 days *j Truck lots, fob yard *k 100 bag lots *l over 150 sacks *m Incl. 4¢ Ga. frt. increase

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 5% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q fob yard

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 8¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *i F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 18.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 28 cu. yds or more. *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp: *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 1-mi zone. *p Heating charge 50¢

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., net refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.30†	Buffington, Ind	$3.40†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.30†	Toledo, O	$3.30†
Clinchfield, Ga	3.45†	Independence, Kan	3.25†	Leeds, Ala	3.30†	Saginaw, Mich	3.30†	Milwaukee, Wis	3.50†
Kingsport, Tenn	3.45†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.30†	Green Bay, Wis	3.35†
West Des Moines, Iowa	3.50†	Northampton, Pa	3.35†	Hudson, N. Y	3.35†	Buffalo, N. Y	3.55†	Ironton, O	3.35†
Nazareth, Pa	3.35†	Universal, Pa	3.60†	Alpena, Mich	3.20†	Oswego, N. Y	3.45†	Montreal City	2.56†
Bath, Pa	3.35†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.45†	Cleveland, O	3.35†	W. Winfield, Pa	3.60†
Lesley, Pa	3.35†	Glant, S. C	3.45†	Howes Cave, N. Y	3.35†	Alsen, N. Y	3.35†	Security, Md	3.35†

† *Prices to hold for first quarter of* 1958.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	.....	.....	.....	$30.50	$45.00	$0.15 -	$0.26	$0.125Pw	$0.28Pw	$0.14	$0.125	$0.30
Baltimore	180.00‡	.....	.....	23.00i	.....	.095i	0.185i	.10iwE	.19iwE	.10i	.105i	0.195i
Birmingham	.....	62.00i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.00ap	48.00ap	.24a	.48a	.11aPw	.24aPw	.11ao	.174aGo	.25aGo
Chicago	180.00‡	90.00‡b	3.95/4.00‡j	24.25b	34.25b	21.40bv	31.40bv	.11bwH	.19bwH	.085b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	89.80d	6.30g	25.00A	.....	25.00Av	.....	.1115AwF	.....	.....	.1115AG	.31AG
Dallas	v	40/63	v	26.35	45.39	.1115	.1944	29.80	51.40	.1080	.1115	.1994
Denver	.....	58.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	112.00	.....	29.65	.....	29.65v	.....	.1361wI	.....	.1026	.....	.36
Kansas City	v	v	v	20.40ci	.....	20.40v	.....	.0925cwJ	.....	.0825c	0.125c	.....
Los Angeles	v	.....	v	22.50dmz	.....	21.00dwz	.....	24.00dzK	.....	23.00dv	.1038	.2038
Minneapolis	.....	.....	3.73h	29.50	.....	29.50v	.....	0.125w	.....	0.115	.134	.....
Montreal	v	v	v	32.50n	44.80n	.176n	.226n	18.70nwE	23.70nwE	.154n	.242na	.27na
New Orleans	.....	.....	.....	20.00v	.....	20.00v	.....	.095w	v	.085B	.095BL	.....
New York	.....	.....	3.70f	26.89qCD	47.32qD	26.89wCD	47.32wD	.1273wCDF	.2139wDF	.....	.1273CD	.2183D
Philadelphia	175/185	110/120	4.08	24.00	.....	24.00	.....	.11wF	.....	.105	.....	.....
Pittsburgh	60.00k	99.12in	6.35	32.40i	.....	32.40iv	.....	.141i	.....	.14‡	.1411i	.....
St. Louis	.....	.....	.....	22.90f	.....	.1825	.....	.1035fwM	.....	0.165	.825	.....
San Francisco	.....	70.00s	.....	24.50g	41.50g	24.50gbs	41.50gbs	25.50gN	43.00gN	25.25sg	25.50ys	.206y
Seattle	.....	.....	.....	27.00s	42.00k	27.50s	.....	28.50K	.....	26.25kv	25.50ks	46.10krs
Toronto	.....	125.50	4.50f	40.10	59.38	0.2005	0.2445	0.214w	0.258w	0.198	0.216	.271

‡ Delivered.

PAVING BRICK & BLOCK: *b 3 x 3½ x 8. *c 2½ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 8# treat. *g 3". *h 2" tr, 8# *i 3 x 3½ x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale; *m Pine;*oak $8.57. *n Truck del.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Wood River, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/80 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *q 40/300 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 85/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *z F.o.b Edmonds. *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095 *K MC 3, 4 & 5. *L MS. *M MC 1-5, RC 1-5, $0.108. *N MC 3. *O Truckload. *P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums. *Q F.o.b. Eldorado, Ark.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—LB & CA

▲ **Green Manor Estates, Inc.**, Middle Turnpike West, Manchester, Conn., Owner Builds. $1,519,000, 100 HOUSES, "Green Manorville," third section, HAZARDVILLE, CONN. Arnold Lawrence, 571 Porter St., Manchester, Conn., archt. CD 11/11.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

Pa., Phila.—BA 1/14—Dpt. Procurement, City Hall Annex, Bids 2946-2950 (inclusive) constr. sewers in various locations; Bid 2951 furnishing, installing piping valves, aluminum stop logs and guides and appurtenant work for sludge reaeration Northwest Treatment Works. Plans deposit $15. (Bid 2951). CD 2/4/44.

Del., Wilmington—T V STUDIO, etc.—BA 1/15—Storer Broadcasting Co., c/o Leon N. Tagnani, archt., 901 A. Orange St., T V Studio Bldg. and Transmitter addns., alterations, $250,000. Eggly-Furlowe, Engineers Mall Bldg., Phila., Pa., engrs. CD 12/13.

Md., Hyattsville—BA 1/20—Washington Suburban Sanitary Comn., Hamilton St., Contract 1830-S, sewer constr. Rock Creek Interceptor Sewer from Rockville-Norbeck Rd. to Crabbs Branch. Plans deposit $5. CD 9/23/55.

N. Y., New York—PIER—BA 1/30—Comr. Marine & Aviation, Pier 1, North River, Zone 4, Contr. No. 3003, demolition and removal of Piers 37, 38, 39 and 40 and 41; dredging and constr., substructure of new Pier No. 40, North River, Manhatton Boro. Plans deposit $25. (Correction-bid date). CD 12/13.

BUILDINGS—BA

N. J., Lincoln Park—SCHOOL—BA 1/15—Bd. Educ., Lincoln Park, elementary school, Montrose St. $498,500. Target for completion Nov. 1958, Alfonso Alvarez, 243 Lorraine Ave., Upper Montclair, archt. CD 4/13/56.

▲ **N. J., Swedesboro**—PLANT AND OFFICE, etc.—BA 1/15—California Packing Corp., Swedesboro, plant and office addns. and also railroad sidings. $1,000,000. C. K. Lane, owner's exec. in charge.

N. J., Matawan—SCHOOL—BA 1/16—Bd. Educ., Matawan, elementary school in Cliffwood Section. $660,000. Frederic Fessler, Holmdel Rd., Haslet, archt. CD 7/13/56.

† **N. Y., Brookhaven**—GENERATOR FOUNDATION—BA 1/20—Brookhaven National Laboratory, Associated Universitys Inc., Upton, N. Y., motor generator foundation in power room of service bldg. for alternating gradient sychrotron at Brookhaven National Laboratory. Stone & Webster Eng. Corp., M. N. Egner, suot. constr., Brookhaven National Laboratory, Upton, N. Y., engineers to design, supervise and direct construction. CD 10/26/55.

▲ † **Md., Annapolis**—STADIUM, etc.—BA 1/21—Officer in Charge of Constr., U. S. Naval Academy, stadium and parking area, Naval Academy. $3,000,000. L. P. Kooken Co., New Oxford, Pa., also 2017 Maryland Ave., Baltimore, Md., consult. engr. CD 11/17/47.

▲ **N. Y., Mineola**—COUNTY OFFICE—BA 1/28—Bd. Supervs. Nassau Co., County Old County Court House, Contr. B-828VI, general constr.; Contr. B-828-V2, heating, ventilating and air conditioning; Contr. B-828-V3, plumbing; Contr. B-828-V4, electrical; Contr. B-828-V5, elevators, Nassau County Office Bldg., Old County Rd. and County Seat Dr. West, Incorporated Village of Garden City, Town of Hempstead. $4,000,000. Plans deposit $75. CD 7/5/56.

▲ **N. Y., Valhalla**—OUT-PATIENT WING—BA 2/10—Dpt. P. Wks., Westchester Co., County Office Bldg. White Plains, new wing for out-patient clinical services, Grasslands Hospital. $1,509,000. York & Sawyer, 101 Park Ave., New York, Zone 17, archts. CD 3/22/56.

HEAVY CONSTRUCTION—LB & CA

Counties Constr. & Contg. Co., 9th St. and Sedley Ave., Phila., Pa. LB $128,375 Bid 3217-3219 traffic signal sys. and street lighting sys., PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Dec. 19. CD 12/5.

Ernest Ventresca, 5600 Bingham St., Phila., Pa. LB $73,189, Bid 2943 water mains in Hilspach St. and other locations, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Dec. 19. CD 12/4.

BUILDINGS—LB & CA

L. & L. Constr. Co., Inc., 100 Riverside St., Newark, N. J., CA $350,000, MOTOR TERMINAL, GARAGE, OFFICE BLDG. and parking area, KEARNY, N. J. Roadway Express Inc., 147 Park St., Akron, O. CD 1/21.

▲ **Rose Hill Farms, Inc.**, c/o Saul Werner, 76 Coster Ave., Newark, N. J., Separate Contracts, $1,750,000, 50 unit RESIDENTIAL DEVELOPMENT, Princeton Twp., PRINCETON, N. J. William Chirgotis, 968 Stuyvesant Ave., Union, N. J., archt.

C. C. Blauth, Yardville, N. J., CA $100,000, WAREHOUSE, TRENTON, N. J. Anchor Warehouse, Inc., New York Ave., and North Olden Ave., Trenton, N. J.

Ranchwood Development Inc., 223 Emory Ave., Trenton, N. J., Separate Contracts, $344,000, RESIDENTIAL DEVELOPMENT, Sylvan Ave., etc., TRENTON, N. J.

Charbert Corp., 6718 N. Broad St., Phila., Pa. Separate Contracts. $344,000 RESIDENTIAL DEVELOPMENT, Dorel Rd., etc., ABINGTON, PA. Edwards & Green, 17 S. 5th St., Phila., Pa., archts.

Conestoga Building Co., c/o Harry Shapiro, 1518 Walnut St., Phila., Pa., Separate Contracts. $344,000 RESIDENTIAL DEVELOPMENT, Lindsay Ave., ABINGTON, PA.

Erwin B. Miller, 1343 W. Indian Creek Dr., Phila., Pa., Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Red Hill Rd., etc., BROOMALL, PA.

F. B. Davis Sons, 1731 Spring Garden St., Phila., Pa. CA $344,000 JUNIOR SCHOOL BLDG., HAVERFORD, PA. Haverford Pa. School, Haverford, Pa. Clarence H. Woolmington, 1731 Spring Garden St., Phila., Pa., archt.-engr.

Fleming Co., Wynnewood, Pa. CA $93,000 Benner SUBSTATION, PHILA., PA. Phila. Elec. Co., 1000 Chestnut St., Phila., Pa. Bids Nov. 20. CD 11/12.

Morton Bldg. Co., c/o Louis Kirschner, 185 E. Walnut Lane, Phila., Pa. Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Hartwell Lane, etc., PHILA., PA. G. Harold Murphy, 1621 Sellers St., Phila., Pa., archt.

Roanoke Constr. Co., 45 W. Maplewood Ave., Phila., Pa. CA $344,000, SHOPPING CENTER and parking area, Wayne Ave., PHILA., PA. Stuempfig & Co., 45 W. Maplewood Ave., Phila., Pa. Thalkeimer & Weitz, 1325 Walnut St., Phila., Pa., archts.

Fleming Co., Wynnewood, Pa. CA $93,000, STORAGE BLDG., PHILA., PA. George Young Co., 20th and Oregon Ave., Phila., Pa. Dorfman & Bloom, 1411 Walnut St., Phila., Pa., archts.

▲ **Eitner Homes, Inc.**, Southampton, Pa. Separate Contracts. $2,000,000, RESIDENTIAL DEVELOPMENT, (Street Rd., vicinity etc.) SOUTHAMPTON, PA.

Richard H. Kolle, Doylestown, Pa. Separate Contracts. $344,000, RESIDENTIAL DEVELOPMENT, Lakeview Rd., etc. WILLOW GROVE, PA.

SOUTH

HEAVY CONSTRUCTION—BA

† **Lonuisiana**—BA 1/17—U. S. Eng., foot of Prytania St., New Orleans, constr. 1,150 lin. ft. standard board revetment on Red River, 2,350 lin. ft. pile dike constr. Red River at Hanna & Colfax, Inv. No. 58-162, Armistead. CD 4/22/44, under Illinois-Louisiana.

La., Leesville—BA 1/22—Town, Town Hall, sewage treatment plant imprvs. and sewage collection sys. extensions. Extended date. Plans deposit $30. F. P. Joseph Assoc., 803 Murray St., Alexandria, engrs. CD 11/29.

† **N. C., Fort Bragg**—LANDSCAPING—BA 1/23—U. S. Eng., 308 Customhouse, Wilmington, landscaping for bldgs. and grounds, ENG-31-075-58-12. CD 8/27/56.

HEAVY CONSTRUCTION—LB & CA

† **W. H. McLamb & Sons**, Shallotte, N. C. LB $174,893 steel sheet pile bulkhead at Charleston Transportation Depot, North Charleston, No. 38-081-58-04. CHARLESTON, S. C. U. S. Eng., 205 King St., Charleston, S. C. CD 9/17.

Claussen & Webster, Box 840, Augusta, Ga., LB $82,500, Highland Park swimming pool, AUGUSTA, GA. City Council, City Hall, Augusta, Ga. Bids Dec. 16, CD 12/6.

▲ **FLORIDA**—State Rd. Dpt., Tallahassee
Wiley N. Jackson Co., R. F. D. 4, Box 1408, Roanoke, Va., CA $2,141,363, Fed. Aid Proj. No. 1-003-7-(15), Job No. 7202-478 and State Proj. Job. No. 7207-176, Sr. No. 5, 9, and 10, heavy grading and embankment; 6½ in. and 8½ in. limerock base, primed; Type 1 conc. surf. course and binder course; 7 in. and 9 in. conc. pavement (plain) correcting ramps; drainage structures; constr. 4 concrete and steel (rolled beam and plate girder spans) grade separation bridges on concrete piers founded on prestressed concrete piles; electric lighting system and handrail, removal of existing Bldgs., length of bridges is 770.67 ft., length of roadway (not incl. ramps and bridges) is 0.681 mi., length of projects is 0.758 mi. between Montana Ave. and Old St. Augustine Rd. in South Jacksonville (Jacksonville Expressway), Durval Co. Bids Nov. 20, CD 11/26, under LB.

W. R. Core, Covington, La., LB $256,939 (3 bidders), approx. 18 mi. street paving imprvs. MANDEVILLE, LA. Town Council, Mandeville, La. Bids Dec. 19. CD 11/25.

F. Miller & Sons, Lake Charles, La., LB $266,970 (2 bidders), disposal plant, WEST LAKE LA Town Council Town Hall, West Lake, La. Bernard & Burk, 1023 Nicholson Dr., Baton Rouge, La., engrs. Bids Dec. 19. CD 11/15.
Red River Constr. Co., 2212 Hollywood Ave., Shreveport, La., LB $531,492 (2 bidders), sewerage system (West Lake, La.)

BUILDINGS—LB & CA

Abco Builders, 2220 College Ave., Atlanta, Ga., CA $790,199, Southside HIGH SCHOOL ATLANTA GA. City Bd. Educ., City Hall, Atlanta, Ga. Bids Nov. 21, awarded Dec. 19, CD 12/5, under LB.

Sullivan, Long & Hagerty, 801 5th Ave. N., Birmingham, Ala., LB $817,000 POWER PLANT STRUCTURES, Contr. P-115, Gantt, ANDALUSIA, ALA. Ala. Electric Co-operative, Inc., Andalusia, Ala. CD 12/9.

† **Blount Bros Constr. Co.**, Box 1114 Montgomery, Ala. LB $881,221 TECHNICAL LIBRARY and 3 SHOP BLDGS. at Redstone Arsenal, HUNTSVILLE, ALA. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Dec. 19. CD 12/6.

▲ **United Engineering & Foundry Co.**, 948 Fort Duquesne Blvd., Pittsburgh 22, Pa. CA total $60,000,000 HOT STRIP MILL to produce aluminum plates and strip LISTERHILL, ALA. Reynolds Metals Co., Reynolds Metals Bldg. Richmond, Va. CD 4/22.

Wright & Maugh, Contractors, 506 West Second St., Leland, Miss., LB $754,200, 3 SCHOOLS, DREW, MISS. Bd. Trustees, Drew Separate School Dist., Drew, Miss. E. L. Malvaney & Assocs., Millsaps Bldg., Jackson, Miss., archts and engrs. Bids Dec. 3.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Wis., Madison**—AIRCRAFT SHELTER—BA 1/23—U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill.,
(Continued on page 84)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Donstruction Daily.

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Name_____

Firm name_____

Street address_____

City_____ State_____

(Continued from page 82)

constr. exterior inclosure and related work for aircraft shelter at Truax Field, Eng—11-032-58-16. CD 9/17.

BUILDINGS—BA

Mich., Midland—SCHOOL—BA 1/14—City, Bd. Educ., R. W. Caldwell, secy., 2512 Jefferson Ave., elementary school, Section Four, Plans deposit $50. Jahr-Anderson-Machida Assocs., 15001 Michigan Ave., Dearborn, archts. CD 8/23/56.

BUILDINGS—SLC

Mich., Bay City—WAREHOUSE, etc.—BA—Bay City Milling & Grocery Co., Bay City, soon lets contract, warehouse and office, Theodore Rogvoy, 929 Fox Bldg., Detroit, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dpt. Hys., George J. Thormyer, acting dir., Columbus, Zone 15, Bids opened 12/17,

O.—**V. N. Holderman & Sons, Inc.**, 390 Oakland Ave., Columbus, O., CA **$3,609,442**, est. $3,839,900, Contr. Ric 102061, 3.8 mi. Cincinnati-Conneaut Freeway, State Rte. 1, from just north of Charles Mill Reservoir, Richland Co., to just south of Ashland Co., 2 bridges will carry Freeway over Black Fork of Mohican River and Ashland Co. Road 71, 2 other bridges one to carry Township Rd. 157 over the Freeway and other to carry Crider Road over Black Fork of Mohican River, Ashland and Richland Counties; CA **$4,405,992**, est. $4,705,200, Contr. No. MRWI-1289 5.5 mi., west of Chesterville northeast to near Johnsville Rd. about 5 mi. east of Mt. Gilead, a "diamond" type interchange constr. at State Rte. 95, Center Corners Fredericktown Rd. Mt. Gilead-Fredericktown Rd. and State Route 344 over the Freeway, 4 lane divided highway will be constructed on 300 ft. wide right-of-way and will have 84 ft. median strip both inside and outside shoulders will be paved, Morrow Co.; CA **$4,924,618**, est. $5,374,700 4.2 mi. section of Freeway State Route No. 1 from 1 mi. northeast of State Route 39 to just north of Charles Mill Reservoir connecting the Richland and Ashland Counties, the Richland segment is parallel to US 42, northeast of Mansfield interchange will be constructed at relocated US 30, 2 bridges will carry the Freeway over relocated 30 and Crider Rd. and a single structure will carry existing US 30 over the Freeway the 4 lane divided hy. constr. on 300 ft. wide right-of-way and have 84 ft. median strip, both inside and outside shoulders paved, Richland Co.;

O.—**Alleghany Contg. Industries, Inc.**, 801 Bingham St., Pittsburgh, Pa., CA **$3,094,916**, est $3,152,800, Contr. No. ATB 1-1583, 3.5 mi. section of the Cincinnati-Conneaut Freeway State Route No. 1, east of Gageville to just east of Wright Rd. Freeway section is parallel to and about 2 mi. south of State Route No. 84, 4 lane divided highway will be built on 300 ft. wide right-of-way and have an 84 ft. median strip, both inside and outside shoulders will be paved, bridges will be constructed to carry the Freeway over Ashtabula River and to carry State Route 83 and Wright Rd. over the Freeway, Ashtabula Co.;

O.—**National Engineering & Contg. Co.**, 1968 W. 3rd St., Cleveland, O., CA **$1,407,561**, est. $1,937,400, Contr. No. CUY 17-2095, constr., new Granger-Libby Viaduct over Pennsylvania and Wheeling and Lake Erie (nickel Plate) railroads and Mill Creek and Greenhurst Dr., in Maple Heights, Cuyahoga Co.;

O.—**Harry Miller Excavating Co. & The Central States Constr. Co.**, Box 54, Suffield, O., CA **$2,439,093**, est. $2,552,500, Contr. No. MED 1-1091, constr. 3.5 mi. section of Cincinnati-Conneaut Freeway State Route 1, from intersection of Route 3 and County Rd. 78 to just northeast of State 3 and County Rd. 78 to just northeast of State Route 57 Poe Rd. intersection the Freeway segment which runs parallel to US 42 3 mi. south of Medina. Medina 4 lane divided highway will be constructed on 300 ft. wide right-of-way and will have an 84 ft. median strip both inside and outside shoulders will be paved, 4 bridges will be constructed to carry Good, Abbott and Poe Rds. and State Route 57 over the Freeway, Medina Co.;

O.—**Fisher Constr. Co.**, 4053 Clifton St., Cincinnati, O., CA **$1,402,962**, est. $1,494,200, Contr. No. WAR 42-1923 constr. 3 mi. Waynesville traffic relief route to take heavy US 42 through off clogged Main St. in Waynesville 4 lane divided, limited access section of highway along east side of town, begins at Pekin Rd., US 42 intersection extending to just north of Walter St. where relocated section rejoins existing 42, 7 intersecting roads and streets will provide adequate access to down town Waynesville, a direct turnoff to Main St. will also be provided, pavement on either side of a grass median strip will be 24 ft. wide median width is a minimum 40 ft. shoulders will be paved, Warren Co.;

O.—**Penker Constr. Co.**, 1030 Summer St., Cincinnati, O., CA **$6,983,282**, est. $8,656,000 Contr. No. HAM 50-2198, constr. Thirds Street Distribution, Hamilton Co.;

O.—**C. F. Replogle Co.**, Circleville, O., CA **$2,604,25▲** est. $2,694,000, Contr. No. JAC 35-0708 6.5 mi. section US 35, to eliminate 5 narrow bridges and several steep hills and sharp curves, Proj. calls for 2 land pavement on 4 lane right-of-way, begins 3 mi. northwest of Jackson and extends to about 3 mi. southeast of Ross Co. line, 2 full roadway width 44 ft. bridges will be constr. over Little Sale Creek to replace existing structures, the creek channel will be straightened to eliminate the need for three other existing bridges, Jackson Co. Grand total $30,872,118. CD 12/24, under LB.

Erickson & Blanchard, Inc., Wilmington, Ill., LB **$239,-739** sewage treatment plant and lift station, sanitary sewer addn., WILMINGTON, ILL. City, City Hall, Wilmington, Ill. Bids July 10 rejected. CD 7/23, under LB.

Badger State Constr. Co., 3140 W. Fond du Lac Ave., Milwaukee, Wis., CA **$164,500** (4 bidders), imprv. Lincoln Creek from N. 47 St. to W. Hampton Ave., MILWAUKEE, WIS. Sewerage comn. of the City of Milwaukee, Jones Island, Milwaukee, Wis. Bids Dec. 17, awarded Dec. 18. CD 12/9.

BUILDINGS—LB & CA

▲ **Bank Bldg. & Equipment Co.**, 1130 Hampton Ave., St. Louis 10, Mo., CA **$1,000,000**, design and construct 2 story, attic and full bsmnt. split granite exterior BANK BLDG., MASSILLON, O. **First Savings & Loan Co.**, Massillon, O. (**Correction**—contractors address). CD 12/19, under CA.

Oman & Giden, 1779 Willow Rd., Northfield, Ill., CA **$510,000**. SUNDAY SCHOOL Addn., 5244 N. Lakewood Ave., CHICAGO, ILL. North Shore Baptist Church, 5244 Lakewood Ave., Chicago, Ill. Edwin C. Bruno, 4120 Oakton St., Skokie, Ill., archt. CD 12/24, under LB.

Gust Constr. Co., Cedar Springs, Mich., LB **$439,500** HIGH SCHOOL Addn. and ELEMENTARY SCHOOL, CARSON CITY, MICH. Bd. Educ., Carson City Community School, Carleton Wilson, secy., Carson City, Mich. Bids Nov. 27. CD 11/12.

† **Procurement Dpt.**, K. I. Sawyer Air Force Base, Marquette, Mich., received no bids Dec. 19, constr. 340 CAPEHART UNITS at K. I. Sawyer Air Force Base, Gwinn, MARQUETTE, MICH. Hugh Johnson Assoc., Inc., 2000 P St. N. W., Wash., D. C., archt. CD 12/12.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Oklahoma**—BA 1/22—U. S. Eng., 416 Wright Bldg., Tulsa, Zone 2, Bank stabilization of Arkansas River, Wilson Rock, Sequoyah Co., ENG-34-066-58-29. Over $100,000. CD 10/15/45.

† **Kan., Fort Leavensworth**—COMMUNICATIONS BLDG. ADDN. On Or About 1/28—U.S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., communications building addn. for Midwest Relay Center, ENG.-23-028-58-18. CD 10/31/46.

† **Missouri**—BA 1/31—U. S. Eng., 420 Locust St., St. Louis 2, Mo., constr. floodwall and closure structure Cape Girardeau Flood Protection, Proj. Item III-A (1) Cape Girardeau, ENG-23-065-58-32. CD 11/7/55.

HEAVY CONSTRUCTION—LB & CA

Cecil Cannady Constr. Co., Monett, Mo. CA **$86,870** (b) water distr. extens., using c. i. pipe HEBER SPRINGS, ARK. City, Arlie Ramsey, mayor, City Hall, Heber Springs, Ark. Bids Nov. 26. CD 12/11, under LB.

KANSAS—State Hy. Comm., State Office Bldg., Topeka, Bids opened 12/20,

Union Constr. Co., 1401 Fairfax Thruway, Kansas City, Kan., LB **$97,051**, twin 51 ft.-65 ft.-51 ft. rein. con. hollow slab, Br. No. 169-46-29.7, Sta. 119 plus 26.12; LB **$162,746**, twin 51 ft.-65 ft.-51 ft. rein.-con. hollow slab, Br. No. 169-46-30.6, Sta. 165 plus 38.5, State Proj. No. 169-46 I 02-3(6) Pts. I & II, both Johnson Co. CD 12/5, under Streets and Roads.

▲ **KANSAS**—State Hy. Comn., State Office Bldg., Topeka, Bids opened 12/20,

Kan.—J. A. Tobin Constr. Co., 3701 Rainbow Blvd., Kansas City, Kan., LB **$1,854,908**, c.conc. 11.137 mi. beginning at jct. US-50 and 63rd St. in Merriam, thence south westerly on Westbound lane of Interstate US-50, Proj. No. 50-46 I 02-3 (12) Pts. I & II, III & IV, Johnson Co.

Kan.—Buchanan Brothers, 1015 S. Bethany, Kansas City, Kan., LB **$420,281**, grading 3.022 mi. beginning on Johnson-Wyandotte Co. line approx. 1/8 mi. west of Lamar Ave., thence southwesterly on new location US-169 to jct. with US-50, SP No. 169-46 I 02-3(6) Pts. I & II, Johnson Co. CD 12/5.

Pittsburgh-Des Moines Steel Co., Praetorium Bldg., Dallas, Texas, CA **$108,320**, 4 m. g. steel water tank, CLINTON, OKLA. City, City Hall, Clinton, Okla. Bids Dec. 17. CD 11/20.

▲ **Lone Star Pipe Constructors, Inc.**, c/o owner, Houston, Tex. CA **$8,250,000**, 143 mi. 20 in. crude oil line from Teague to within 6 mi. of Houston, TEXAS. Sinclair Pipe Line Co., c/o Petroleum Bldg., Houston, Tex. CD 11/27

Golightly Constr. Corp., 6450 Liberty, Houston, Tex. CA **$240,000**, 6 mi. 20 in. crude line on lower end at Houston on 149 mi. line between Teague and Houston (Texas).

† **U. S. Eng.**, Box 1538, Albuquerque, N. M., cancelled bids to have opened Jan. 7 manual operations bldg. addn. at Pyote Air Force Base, ENG-29-005-58-3 PYOTE, TEX. Est. $200,000. CD 12/26.

Gifford-Hill American, Box 4335 Station A, Dallas, Tex. LB **$230,136** Contr. 18 water imprvs., WACO, TEX. City, c/o Elmer A. Roberts, comptroller, Waco, Tex. Joe J. Rady, 511 Insurance Bldg., Fort Worth, Tex., engr.

† **Soil Conservation Service**, New Custom House, Denver, Colo., rejected bids Dec. 10, protection structures Kiowa Creek near Elbert, Elbert Co., No. 9-CO-58, COLORADO. CD 11/25.

BUILDINGS—LB & CA

Sharp Contg. Co., 1014 E. 19th St., Kansas City, Mo., CA **$880,986**, three 1 story DORMITORY BUILDINGS for Missouri State School for Feeble-Minded & Epileptics HIGGINSVILLE, MO. State, c/o Ralph McSweeney, dir. P. Bldgs., 100 State Capitol, Jefferson City, Mo. Bids Dec. 12. CD 12/18, under LB.

P. G. Bell Co., Contractors, 3406 W. Lamar, Houston, Tex., LB **$428,000**, AUDITORIUM for Rob. E. Lee HIGH SCHOOL, BAYTOWN, TEX. Goose Creek Consolidated School Dist., Baytown, Tex. Bids Dec. 19 CD 11/21.

John M. Schaefer, 311 Travis Bldg., San Antonio, Tex., Owner builds. **$350,000**, 50 low-priced DWELLINGS in Wheatley Heights, SAN ANTONIO, TEX. CD 11/4.

† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex., LB **$181,352**, est. $200,000, 52x272 ft. ABMA MISSILE HANDLING BLDG. and appurtenances, White Sands Proving Grounds, Inv. No. ENG.-29-005-58-42, LAS CRUSES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M., Bids Dec. 17. CD 11/21.

FAR WEST

BUILDINGS—BA

▲ **Calif., Berkeley**—RESIDENCE HALLS—BA 1/21—Regents of University of California, Admin. Bldg., four 9 story residence bldg., halls, kitchens, etc. $5,000,000. Plans deposit $100. Warnecke & Warnecke,, Financial Center Bldg., Oakland, archts. CD 1/2.

▲ **Wash., Mount Vernon**—COLLEGE—BA 1/23—Union High School Dist. No. 1, Mount Vernon, 7 steel frame bldgs. totalling 103,000 sq. ft. for Junior College, $1,144,000. Plans deposit $50. Hovind, Harthorne & Smith, 1500 Westlake Ave. N., Seattle, archts. CD 5/23.

HEAVY CONSTRUCTION—LB & CA

▲ † **Donald M. Drake Co.**, 1600 N. W. Savier St., Portland, Ore., LB **$2,681,004** (12 bidders), earthwork, concrete canal lining and structures for Esquatzel diversion canal, Sta. 0 plus 82, Schedules 1 and 2, Columbia Basin Proj., DC-5000, WASHINGTON, Bureau Reclamation, Dpt. Interior, Ephrata, Wash., Bids Dec. 19. CD 11/18.

Industrial Engineers & Contractors, 711 Middle Waterway, Tacoma, Wash., LB **$305,383**, est. $242,000 (13 bidders), 75x165 ft. concrete or steel plate swimming pool and 45x50 ft. diving pool, TACOMA, WASH. Metropolitan Park Bd., City Hall Annex, Tacoma, Wash. Bids Dec. 20. (**Correction**—contractor's address). CD 12/26, under LB.

BUILDINGS—LB & CA

▲ † **Phil Yousem**, 1500 Lincoln St., Venice, Calif. LB **$8,963,000**, est. $11,750,000. (17 bidders) Armed Services HOUSING, consisting of 725 family housing units, air conditioning, at Luke Air Force Base, Inv. 02-604-58-10, PHOENIX, ARIZ. Base Procurement Office, Luke Air Force Base, Glendale, Calif. Ralph Haver & Assocs., 207 E. Camelback Rd., Phoenix, Ariz. archts. Bids Dec. 18. CD 11/8.

Newland Constr. Co., Everett, Wash., LB **$806,000**, (5 bidders), general contract, 1 story 80x220 ft., 80x226 ft., 82x202 ft., 135x154 ft and 122x130 ft. frame bldgs. for JUNIOR HIGH SCHOOL, EVERETT, WASH., School Dist. No. 2, Everett, Wash. Bids Dec. 20. CD 11/27.

Dahlgren Constr. Co., 1700 21 Ave. So., Seattle 44, Wash., CA **$621,325**, general contract JUNIOR HIGH SCHOOL BLDGS., MERCER ISLAND, WASH. School Dist. No. 400, Mercer Crest School, 86 S. E. 42 St., Mercer Island, Wash. Bids Oct. 22, awarded Nov. 21. (**Correction**—name of contractor). CD 12/3, under CA.

Ellberg & Conklin, 1457 Smith St., Kingsburg, Calif. CA **$413,885**. (5 bidders), wood and steel frame Kingsburg High SCHOOL addns. and remodeling, rein.-con. fdns. (Boys Field House Addn.) KINGSBURG, CALIF. Kingsburg Joint Union High School Dist., c/o Supt., 1900-18th Ave., Kingsburg, Calif. Horn & Mortland, 2016 Mercec St., Fresno, Calif. archts. CD 10/3/56.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Que., Montreal**—BA 1/15—City, City Hall, constr. of 5th Section of Decarie-Paimbault collector sewer, between Metropolitan Blvd. and Vezina St. Over $1,000,000. Plans deposit $200.

HEAVY CONSTRUCTION—LB & CA

Universal Electric, 52 Concord St., Ottawa, Ont., LB **$154,000** (12 bidders) airport lighting facilities at Torbay Airport, incl. installing high intensity lights on all runways, medium intensity lights on taxiways, runways, etc., TORBAY, NEW FOUNDLAND. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 1/29.

NOVA SCOTIA—Nova Scotia Dpt. Hys. & P. Wks., Parliament Bldgs., Halifax,

N. S.—Tidewater Constr. Co. Ltd., Halifax, N. S., CA Est. over **$300,000**, reconstruction and grading 28 mi. hys., Fisher Mill to Drem Head, Guysborough Co.;

N. S.—H. H. Latimer Constr. Co., 43 Charles St., Truro, N. S., CA Est. **$150,000**. reconstruction and grading 12 mi. hys. in Halifax Co.;

N. S.—Municipal Spring & Contrg. Ltd., 1350 Barrington St., Halifax, N. S., CA Est. **$160,000**, paving 8.5 mi. highway, Yarmouth Co. Grand total $610,000. Bids Dec. 6, awarded Dec. 17.

NOVA SCOTIA—Dpt. Hys. & P. Wks., Parliament Bldgs., Halifax,

Warren Maritimes Ltd., 90 Granville St., Halifax, N. S., CA **$300,000**, paving 18 mi. Cabot Trail, Englishtown to South Haven, Englishtown, Victoria Co. Awarded Dec. 17.

Pioneer Constr. Co. Ltd., 155 Cedar St., Sudbury, Ont., CA **$576,000** (10 bidders) installing all services in north end land assembly proj. incl.: approx. 12,000 ft. sanitary sewer, 8,500 ft. storm sewer, 13,000 ft. roadway with curb, 12,000 ft. water main, SUDBURY, ONT. City, L. N. Houck, deputy city clk., 83 Cedar St., Sudbury, Ont. Bids Dec. 19, awarded Dec. 21. CD 12/12.

BUILDINGS—LB & CA

Greenwin Constr. Co. Ltd., 3130 Bathurst St., Toronto, Ont., Owner Builds. **$380,000**, 3½ story Z-shaped masonry bearing walls APARTMENT, poured concrete fdn., Eccleston and Swift Drives, TORONTO, ONT. John H. Daniels, 166 Wilson Ave., Toronto, Ont., archts.

Emile Asselin, 3190 Sherbrooke St. E., Montreal, Que., Owner Builds. **$350,000**, ten 37 X 38 ft. brick walls, stone front split level BUNGALOWS with GARAGE, concrete fdns., on L'Assomption Blvd., MONTREAL, QUE. Chalifoux & Geoffroy, 6275 Papineau Ave., Montreal, Que., archts.

▲ **Neo Constr., Inc.**, 4357 Neo St., Ste. Genevieve Montreal suburb, Owner Builds. **$1,500,000**, constr. 162 split level HOMES, St. Genevieve Acres, MONTREAL, QUE. First units to be ready for February inspection.

R. G. A. Girard & Freres Ltee., 6200-40th Ave., Rosemont, Montreal suburb, Owner Builds. **$500,000**, 2 story, bsmnt., brick walls, 20 triplexes HOUSING, concrete fdn. Rosemont Blvd., MONTREAL, QUE. Emilien Bujold, 6746 Molson St., Montreal, Que., archt.

Concrete Constr. Ltd., 1082 Decarie Blvd., Montreal, Que., CA About **$850,000**, 4 story, with partial bsmnt. T-shaped, 40 X 148 ft. and 42 X 140 ft. rein.-con. frame, brick walls with some stone, Women's RESIDENCE, concrete fdn. at MacDonald College, STE. ANNE DE BELLEVUE, QUE. Bd. Governors, McGill University, Montreal, Que. Bids Oct. 2. CD 9/24.

▲ **Ken Dorian Constr. Co.**, Ste. Marguerite, Que., Est. CA **$2,300,000**, 26 X 50 ft. clapboard, red-wood siding, 135 BUNGALOWS and split level HOMES, STE. MARGUERITE STATION, QUE. Glen Wexford, St. Marguerite Station, Que. Harold J. Doran, 4800 Monkland Ave., Montreal, Que., archt. Awarded Dec. 19.

ALASKA

HEAVY CONSTRUCTION—LB & CA

† **ALASKA**—Bureau P. Rds., Dpt. Commerce, Federal Bldg., Juneau,

Cole & Paddock, Juneau, Alaska, LB **$399,376** (4 bidders) steel bridge on piling foundation on Glacier Hy. in Tongass National Forest, Proj. 2-0. Bids Dec. 20. CD 12/9.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Sanger—City, 1300-6th St., addnl. pumps and wells (WW expansion), **$100,000**. Wilsey & Ham, 111 Rollins Rd., Millbrae, consult. engrs.

Ga., Woodbine—Town, Town Hall, water sys., incl. deep well, pumping equip., aerator, chlorinator, elev. tank, distr. lines and fire hydrants. **$140,000**.

N. J., Clifton—City, City Hall, exten. water main in Grove St., **$100,000**. William Holster, City Hall, engr.

N. J., Point Pleasant—Boro, Boro Hall, preliminary plans, water tank, **$200,000**, Boyd & Remington, 6400 Crescent Bldg., Pennsauken, consult. engrs.

O., Canton—City, City Hall, cost estimate for aeration filtration plant at Northwest Water field has been increased. **$754,000**. Havens & Emerson, 640 Leader Bldg., Cleveland, Zone 14, consult. engrs. CD 7/11/56.

Va., Tazewell—City, City Hall, water treatment plant and pumping station, **$400,000**. Nathan C. Hale Assocs., 916 W. Broad St., Falls Church, consult. engrs.

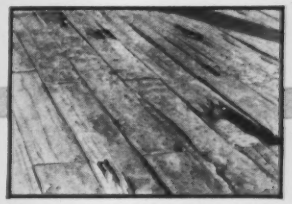
Wash., Pasco—City, City Hall, 20 in. c. i. main in Chase Ave. and Olive St., 16 and 12 in. main under N. P. R.R. tracks and in Oregon Ave., addns. to treatment plant, expansion of pumping station and 12 in. water main in Court St., **$650,000**. Bids to be called early 1958. Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consult. engrs. CD 8/15.

Que., La Tuque—La Municipalite de la Tuque, Town Hall, water mains and sewers in various streets, **$100,000**. Leo Archambault, 536 Ave. du Coteau, La Tuque, consult. engr.

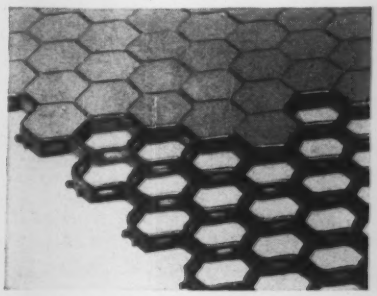
SEWERS, WASTE DISPOSAL

Calif., Lakeport—City, c/o City Clerk, City Hall voted bonds Dec. 10, sewer imprvs. (addnl. pond storage, piping, reservoir, etc.) **$300,000**. Trotter & Assoc., 1784 Shattuck Ave., Berkeley, Calif., consult engrs. CD 10/23.

DO RUTS AND POTHOLES RUIN YOUR PLANT FLOORS?



The small hard wheels of heavy loaded fork lift trucks, hand trucks and impact from heavy falling objects often ruin industrial floors made of wood, asphalt or even concrete.



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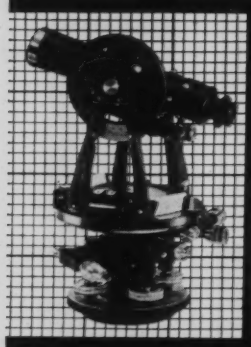

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Conn., Hartford—Metropolitan Dist., 115 Broad St., School St. Branch Sewer, from Beeman's Brook Trunk Sewer to School St., in private right-of-way North of Park Ave., Bloomfield, $100,000; trunk sewer along Beeman's Brook, from Eddy St. to North of Park Ave., $200,000, Warren N. Gentner, c/o owner, ch. engr.

▲ **Idaho, Idaho Falls**—City, City Hall, sewage treatment plant, $1,850,000, Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consult. engrs. Bids next summer. CD 12/17.

Mich., Iron River—City, Leonard Schive, mayor, Iron River, sewage disposal plant and treatment facilities, $178,000. Federal Aid approved. $59,827.

▲ **Mich., Troy**—City, C. R. Lukens, mgr., 60 West Wattles Rd., sewers and sewage disposal, $1,000,000. Pate & Hirn, 532 Michigan Bldg., Detroit, Zone 26, engrs. CD 8/22.

O., Dayton—City, City Hall, storm sewer for North Dayton area, running from extension of Lindorph Dr. to Webster St., north on Webster to Great Miami River south on Webster from Lindorph to 200 ft. north of Windham St. $199,768. Constr. in January '58. CD 10/17.

Tex., Cleburne—City, City Hall, sewage treatment plant unit. $116,100.

Tex., Grand Prairie—Aubra Sharp & Assocs., 124 E. Main St., sanitary sewers $78,000; storm sewers, $75,000, in Sharpstown Heights Subdivision.

Tex., Henderson—City, City Hall, sewage treatment plant, $305,000; outfall sewerage sys. line. $187,598.

Tex., Houston—Johnny Mitchell, c/o Houston Club Bldg., sanitary sewerage sys. $125,000; storm sewerage sys. $125,000, at Lake Houston.

▲ **Wash., Tacoma**—City, City Hall, storm sewers in Fleet Creek area, $905,000, Constr. in 1959; storm drains in McKinley Park and Puyallup Ave., $434,000, Constr. 1958 storm sewer in Portland Ave., $263,000, Constr. 1958; storm sewers in Sprague St., $409,000, Constr. 1958; storm sewers in Upper Leach Creek area, $492,000, Constr. 1959.

▲ **W. Va., Vienna**—City, City Hall, lateral and trunk sewers, interceptor sewers and sewage treatment plant, Proj. No. W. Va. 46-P-3010. $1,272,500, Kelley, Gidley & Staub, 5418 MacCorkle Ave. S.W., Charleston, engrs. CD 12/12, under Va., Vienna.

Alta., Lethbridge—City, City Hall, repair and extend existing sewerage treatment plant. $300,000. Lurie & Neufeld, 303 - 5th St. South, consult. engrs. CD 11/7.

BRIDGES

▲† **Oklahoma**—U. S. Eng., Box 61, Tulsa, Zone 2, 5,437 ft. two lane Willis Bridge over Lake Texoma near Madill. $5,936,000. ($1,550,000 appropriated). CD 10/28/49.

Wash., Everett—Snohomish Co., Courthouse, constr. 250 ft. rein.-con. Thomle bridge on lower Stillaguamish River. $134,000. Bids in Spring. H. R. Powell, Smith Tower, Seattle, Zone 4, consult. engr. E. Barnwell, co. engr. CD 11/13.

▲ **Wash., Seattle**—King Co., $14,000,000 bond election Mar. 11, floating bridge from Sand Point to Kirkland.

Wash., Seattle—University of Washington, 15 Ave. N.E. and E. 40 St., Zone 5, 2 pedestrian overpasses across Montlake Blvd. $100,000, Worthington & Skilling, Lloyd Bldg., zone 1, consult. engrs. Bids soon.

▲ **Wash., Tacoma**—City, City Hall, bridge on Yakima Ave. across Wakefield Dr. $2,000,000. Constr. 1959; replace M St. bridge, $200,000. Constr. 1960.

STREETS AND ROADS

Connecticut—State Water Resources Comn., 165 Capitol Ave., Hartford, Conn., raise East Lake St. and Wakefield Blvd. for 600 ft. because of Mad River Flood Control Project. $100,000. Buck & Buck, 650 Main St., Hartford, consult engrs-archts.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Lowell—hy. relocation of Middlesex St., $1,300,000. Greene Engineering Affiliates, Inc., 84 State St., Boston, Mass., engr. Bids in March. CD 2/13.

▲ **NEW JERSEY**—State Hy. Dpt., Trenton,
Essex, Morris and Hudson Counties—21.5 mi. freeway from U.S. Rte. 46 near Pine Brook, through Roseland, West Orange, Orange, South Orange and Newark to connect with Turnpike at Harrison, $138,000,000. Approved F.A.I. project.
Essex Co.—2.5 mi. spur to link new Freeway with Rte. 22 at Belmont Ave., Newark, $16,500,000. Approved F.A.I. project. Constr. scheduled to begin spring of 1959. CD 11/28/50.

▲ **NEW YORK**—State Dpt. P. Wks., Alfred E. Smith State Office Bldg., Albany,
Nassau Co.—10 mi. section of Long Island Expressway from Guinea Woods Road to Nassau-Suffolk Co. line near Melville. $25,600,000.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Allegheny, Beaver, Lawrence and Mercer Counties—60 mi. 4 lane divided access divided hy. between Penn-Lincoln Parkway Northwards to connect with Keystone Shortway. $50,000,000.

Tex., Arlington—City, City Hall, street imprvs. $250,000.

Tex., Fort Worth—City, City Hall, Tarrant Road paving, Vaughn to Miller. $200,000. CD 9/17/51.

Tex., Houston—Johnny Mitchell, c/o Houston Club Bldg., road constr. at Lake Houston. $150,000.

Wash., Tacoma—City, City Hall, widen and pave S. 56 St., Portland to Pacific Aves. $273,000. Constr. 1959; widen and pave S. 72-74 St., S. Tacoma Way to Portland Ave., $345,000. Constr. 1958, grade, pave Thompson Ave. to Yakima Ave. transition south of new freeway, $145,000. Constr. 1959.

EARTHWORK, WATERWAYS

† **Connecticut**—U. S. Eng., 150 Causeway St., Boston, Mass., flood control dam, west end of Mad River, Conn. River Basin, Winchester. $5,970,000. CD 4/21/44. Buck & Buck, 650 Main St., Hartford, consult. engrs.

† **Connecticut**—U. S. Eng., 150 Causeway St., Boston, Mass., dredge channel from Long Island Sound to New Haven Trap Rock Co. Loading Basin, Pine Orchard. $150,000. CD 11/4/43.

Conn., Stamford—City, City Hall, plans by Thomas H. Yardley, 1758 Newfield Ave., Cove Island, beach constr. $100,000. Brown & Blauveit, 468 Fourth Ave., New York, N. Y., consult. engrs. CD 1/30/57.

Quebec—Dpt. Agriculture, Parliament Bldgs., Quebec City, land drainage near Riviere Roy, St. Jean de la Lande, Beauce Co. $150,000.

AIRPORTS

▲ **Okla., Oklahoma City**—AIRPORT IMPRVS.—City, City Halls, plans by Hudgins Thompson & Hall, 1411 Classen St., airport expansion and imprvs. $7,500,000. CD 12/24/57.

† **Alaska, Homer**—RUNWAY, etc.—Territorial Dpt. Aeronautics, Glover Bldg., Anchorage, runway, taxiway and apron imprvs. at municipal airport. $262,500.

† **Alaska, Juneau**—TERMINAL—Territorial Dpt. Aeronautics, Glover Bldg., Anchorage, enlarging terminal bldg. at airport. $375,000.

PUBLIC BUILDINGS

▲ **Ala., Auburn**—INSTITUTE—State of Alabama, Montgomery, voted bonds Dec. 22 for bldgs. at Alabama Polytechnic Institute $4,500,000. CD 10/2.

▲ **Ala., Birmingham**—MEDICAL CENTER—State of Alabama, Montgomery, voted bonds Dec. 22 bldgs. at University of Alabama Medical College $4,500,000. CD 10/2.

† **Ala., Huntsville**—SUPPORT FACILITIES—U. S. Eng., 2301 Grant St., Mobile, plans by Maurice H. Connell & Assoc., consult. engrs.-archts., 315 N.W. 27 Ave., Miami, Fla., support facilities for ABMA at Redstone Arsenal.

▲ **Calif., Los Gatos**—SCHOOL—Los Gatos Union High School Dist., c/o Supt., Los Gatos, voted $3,000,000 bonds Dec. 17, for Saratoga High School, $2,750,000, and addns. to Los Gatos Union High School. Higgins & Root, 220 Meridian Rd., San Jose, archts. CD 12/2.

Calif., Santa Cruz—SCHOOL—Santa Cruz Elementary School Dist., c/o Supt., 133 Mission St., bond election Feb. 18, school in Westlake area and addns. at Bayview School and Garfield Park School. $600,000.

▲ **Colo., Denver**—SCHOOL—School Dist. No. 1, 414 14th St., plans by Raymond H. Ervin & Assocs., 1500 Denver Club Bldg., 2 and 3 story, 300,000 sq. ft. Senior High School, with swimming pool, East Denver at Monaco Parkway and Leetsdale Dr., $5,000,000. CD 12/8/55.

▲ **Conn., Darien**—SCHOOL—Town, Town Hall, plans by Fletcher-Thompson, Inc., consult. engr.-archt., 211 State St., Bridgeport, high school. $2,250,000. CD 8/2, under LB.

Conn., Stamford—GARAGE—City, City Hall, 1 story, 54 ft. x 114 ft. with 50 ft. wing garage for Police Dpt. $110,000.

▲ **Ga., Athens**—DORMITORIES—Bd. of Regents, University System of Georgia, 244 Washington S.W., Atlanta, plans by Logan & Williams, 321 Palmer Bldg., Atlanta, Ga., 2 dormitories. $6,000,000.

Ill., Edwardsville—SCHOOL—Edwardsville Community Schools Dist. 77, c/o supt., 708 St. Louis St., voted $875,000 bonds Dec. 17, Junior High School, 34 classrooms, study hall, cafeteria, auditorium gymnasium, etc, adjacent to high school on U. S. 66, Bids in 90 days. CD 4/4/52.

▲ **Ill., Tuscola**—HOSPITAL—Bd. Supevrs. Douglas Co., Court House, defeated $1,500,000 bonds Dec. 17, addn. to Jarmen Hospital. Project indefinitely postponed. Dane D. Morgan & Assocs., F. & M. Bank Bldg., Burlington, Iowa, archts. CD 12/9.

▲ **Ill., Urbana**—FIELD HOUSE—University of Illinois, Urbana, plans by Harrison & Abramovitz, 630 5 Ave., New York, N. Y., field house. $7,500,000. CD 3/18/53.

Ind., Fort Wayne — SCHOOL — Fort Wayne Community Schools, Fort Wayne, plans by A. M. Strauss, Inc., Strauss Bldg., 20 room Brentwood Grade School, northeast section of city. $550,000. CD 6/22/55.

Ind., Hobart—SCHOOL—School, City of Hobart, 655 E. 4 St., plans by Schutt Haley Assocs., 510 Jefferson St., Gary, 2 story Junior High School, 4th and New St. $550,000.

Kan., Moscow—SCHOOL—Bd. Educ., Rural High School Dist. & Jt. Common School Dist. of Stevens Co., Moscow, plans by George Tewksbury & Assoc., Mission State Bank Bldg., Mission, classrooms and combined auditorium-gymnasium to serve both elementary and high school students. $350,000. CD 10/4.

Ky., Lebanon—SCHOOL—Marion Co. Bd. Educ., Lebanon, high school. **$400,000.**

Mass., Boston—OUTPATIENT—Commonwealth of Mass., Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., plans by S. S. Eisenberg, 739 Boylston St., Boston, Mass., 58-11 outpatient bldg., Boston State Hospital. **$350,000.** Constr. 1958.

Mass., Falmouth—SCHOOL—Town, Bd. Selectmen, Town Hall, Junior High School, **$500,000.** Constr. 1958.

▲ **Mass., Weston**—SCHOOL—Town, Supt. Schools, School St., Weston, high school, **$1,000,000.** Constr. 1958.

Mich., Grand Haven—SCHOOL—Bd. Educ., Grand Haven P. Schools, plans by Vander Malden & Koteles, Grand Haven, elementary school, Taylor Ave., **$350,000.** CD 11/23/56.

Mich., Grosse Point Woods—MUNICIPAL—City, M. L. Brauns, clk., 20775 Mack Ave., defeated bonds Dec. 16, municipal bldg. **$340,000.** CD 11/1.

Mich., Rockford—SCHOOLS—Bd. Educ. Rockford Schools, plans by H. E. Beyster & Assoc., Inc., 700 Griswold St., Detroit, Zone 26, high school and elementary school, **$800,000.**

Minn., Minneapolis—HOSPITAL REHABILITATION—Regents of University of Minnesota, C. A. Smith, purch. agt., 404 Administration Bldg., Zone 14, plans by C. H. Johnston, 715 Empire Bank Bldg., St. Paul, Elliot Hospital rehabilitation on Minneapolis campus. **$350,000.** Constr. 1958.

▲ **Minn., St. Louis Park**—SCHOOL—Bd. Educ., Independent School Dist. No. 283, V. S. Fermo, clk., plans by Bissell & Belair, 1111 Nicollet Ave., Minneapolis, Junior High School, Texas Ave. and 22nd St. **$2,000,000.** CD 12/4.

Mo., Independence—SCHOOL—Bd. Educ., c/o Dr. O. L. Plucker, supt. Schools, bond election Jan. 21, Ott Grade School addn. **$600,000.** Edward Fuller, 701 E. 14th Ave., North Kansas City, Mo., archt.

Neb., Kearney—PHYSICAL EDUCATION—State Normal Bd., Capitol Bldg., Lincoln, physical education bldg. at Kearney State Teachers College. **$850,000.** Helleberg & Helleberg, Kearney, consult. engrs.

▲ **N. J., Clifton**—CITY HALL—City, City Hall, constr. city hall. **$1,500,000.**

N. J., Eriton—SCHOOL—Delaware Twp. School Dist. Erlton, elementary school, Berlin Rd. in Woodcrest Section **$500,000.**

N. J., Red Bank—SCHOOL—Bd. Educ., Harding Rd., plans by Coffin, Coffin & Ronfeldt, Browne Rd., Wayside, Asbury Park, high school addn. **$475,000-$500,000.**

▲ **N. J., Woodbridge**—SCHOOLS—Bd. Educ., Twp. of Woodbridge, plans by Murray Leibowitz, 214 Smith St., Perth Amboy, school, Kennedy Rd. **$363,000;** school, in Cozy Corner section of Avenel **$363,000;** school, Lafayette Estates **$462,000;** plans by Finne, Lyman & Finne, 259 North Broad St., Elizabeth, Junior High School, Green St., Iselin **$1,524,000;** plans by Alex Merchant, 1 Elm Row, New Brunswick, high school for Inman Ave., Colonial Sec. **$1,524,050;** plans by Emil Schmidlin, 586 Central Ave., East Orange, high school for Murdock Tract, Fords, **$1,524,000;** plans by Boyken & Moss, 139 Woodland Rd., New Market, elementary school, Oak Ridge Heights **$363,000;** elementary school, New Dover Rd. **$462,000.**

▲ **N. Y., Massapequa**—SCHOOL—Bd. Educ., Massapequa, referendum vote in May, Junior High School. **$4,000,000.**

▲ **N. Y., Syosset**—SCHOOL—Bd. Educ., Syosset, school expansion program, incl. 2 story Junior High School, **$2,700,000;** Baylis School addn., **$360,000.**

▲ **N. Y., Uniondale**—SCHOOLS—Bd. Educ., High School, Uniondale, bond issue approved by referendum vote Dec. 14, 2 Junior High Schools. **$4,400,000.** Frederick P. Wiedersum Assocs., 65 Roosevelt Ave., Valley Stream, archts. CD 12/3.

O., Berlin Heights—SCHOOL—Berlin Heights Bd. Educ. plans by Robert Stough, 1422 W. Bancroft St., Toledo, school addn. **$385,000.** CD 11/13.

▲ **O., Columbus**—SCHOOL OF NURSING—Comrs. Franklin Co. Hospital Comn., Court House, School of Nursing, at S. Anthony's Hospital. **$1,082,000.** CD 9/19/56.

O., Hilliard (Columbus P.O.)—SCHOOL—Bd. Educ., Scioto-Darby School Distr., Hilliard, elementary school, east of Hilliard along Cemetery Rd. **$360,000.**

Pa., Connellsville—HOSPITAL—General State Auth., 18th and Herr Sts., Harrisburg, plans by Altman & Altman, Craig and Derrick Sts., Uniontown, 50 bed addn. to Connellsville State Hospital. **$800,000.** A. F. Jones, c/o owner, ch. engr. CD 10/3.

▲ **Pa., Edinboro**—LIBRARY, etc.—General State Auth., 18th and Herr Sts., Harrisburg, plans by Johnson & Gray & Assocs., 1017 Commerce Bldg., Erie, dining hall and library at Edinboro State Teachers College. **$1,200,000.** A. F. Jones, c/o owner, ch. engr. CD 3/1/56.

Pa., Fallsington—SCHOOL—Pennsbury Joint School Bd., plans by Bellante & Clauss, 114 W. State St., Trenton, N. J., William Penn Junior High School, **$750,000.** CD 10/3.

▲ **Pa., Harrisburg**—MEMORIAL—General State Auth., 18th and Herr Sts., plans by McCormick & Segal, Fidelty St., Phila., and Lawrie & Green, 321 N. Front St., constr. William Penn Memorial Bldg. in State Capitol Park Extension area. **$8,000,000.** A. F. Jones, c/o owner, ch. engr. CD 10/1.

▲ **Pa., Slippery Rock**—GYMNASIUM, etc.—General State Auth., 18th and Herr Sts., Harrisburg, plans by Trefry Engr. Co., Butler, constr. field house and gymnasium for Slippery Rock State Teachers College. **$1,200,000.** A. F. Jones, c/o owner, ch. engr. CD 10/3.

Pa., Shamokin—HOSPITAL—State Dpt. Property & Supplies, Capitol Bldg., Harrisburg, plans by A. L. Weisenberg Assocs., 535 Hamilton St., Allentown, Shamokin State Hospital addn., **$400,000.** CD 9/30. A. F. Jones, c/o owner, ch. engr.

Tex., Brownsville—COURT HOUSE—Cameron County Court House, plans by Walter C. Bowman, 1220 Harrison St., Harlingen and A. H. Woolridge, Box 1468, remodeling court house. **$400,000.**

Tex., Channelview—SCHOOL—Channelview Ind. School Dist., c/o Market St. Rd., Houston, elementary school on 20-acre site near Shadowglen Addition No. 2, **$400,000.**

Tex., Gainesville—GIRLS BUILDING—State Bd. Control, c/o Design & Constr. Div., State Capitol, Austin, plans by Stanley Brown, 4012 Cedar Springs, Dallas, girls' bldg. for Gainesville State School for Girls, Box 573. **$350,000.**

▲ **Tex., Port Lavaca**—SCHOOLS—Calhoun School Bd. (Calhoun County Ind. School Dist.), Port Lavaca, voted bonds, elementary school and administration bldg., **$350,000;** Junior High School, **$450,000;** stadium and elementary school addn., Seadrift-Point Comfort. **$200,000.** CD 11/26.

Tex., Sealy—SCHOOL—Sealy Independent School Dist., Sealy, school. **$375,000.**

Tex., Vidor—SCHOOL—Vidor Ind. School Dist., voted bonds Dec. 14, Junior High School. **$400,000.** CD 3/8/56.

Wash., Cosmopolis—SCHOOL—School Dist. 99 plans by W. A. Johnson & Assocs., 3508 Broadway, Everett, elementary school and addn. to high school. **$600,000.** Bids in Spring.

Wash., Everett—ADMINISTRATION—Snohomish County Public Utilities Dist., Everett, administration bldg. **$750,000.** Constr. next year.

Wash., Ilwaco—SCHOOL—School Dist. 113, plans by W. W. Johnson & Assocs. 3508 Broadway, Everett, high school. **$475,000.** Bids in Spring. CD 2/4.

Wash., Menlo—SCHOOL—School Dist. 117 plans by W. A. Johnson & Assocs., 3508 Broadway, Everett, 2 grade schools and addn. to high school. **$550,000.** Bids in Spring.

Wash., Mountlake Terrace—SCHOOL—School Dist. 15 plans by W. A. Johnson & Assocs., 3508 Broadway, Everett, Junior High School. **$725,000.** Bids in Spring. CD 10/15.

Wash., Naselle—SCHOOL—School Dist. No. 155, plans by W. A. Johnson & Assocs., 3508 Broadway, Everett, high school. **$425,000.** Bids to be called in spring. CD 8/8.

▲ **Wash., Seattle**—ENGINEERING, etc.—University of Washington, Seattle, Zone 5, general engineering building, **$1,000,000;** business administration bldg., **$700,000.**

▲ **Wash., Seattle**—RESIDENCE HALLS—University of Wash., 15 Ave. N. E. and E. 40 St., Zone 5, women's residence halls addn. **$1,500,000.** CD 9/20/49.

▲ **Wash., Sunnyside**—SCHOOL—School Dist. 201, Yakima, plans by D. Gochnour, Miller Bldg., Yakima, 86,217 sq. ft. Junior High School. **$1,000,000.** CD 3/15/54.

▲† **Alaska, Fort Greely**—POWER PLANT—U. S. Eng., Anchorage, nuclear power plant to generate heat and light for post. **$4,000,000.** CD 3/18.

Ont., Fort William—SCHOOL—Fort William Bd. Educ., 400 Catherine St., school. **$370,000.**

COMMERCIAL BUILDINGS

▲ **Calif., Burlingame**—OFFICE—Calif. Teachers' Assn., 693 Sutter St., San Francisco, plans by Welton Beckett & Assocs., 153 Maiden Lane, San Francisco, office bldg. at Mills Estate. **$1,000,000.**

▲ **Calif., Oakland**—HOTEL—Hotel Claremont, Ashby Ave. and Claremont Ave., plans by Angus McSweeney, 612 Howard, San Francisco, 8 story rein.-con. hotel addn. **$2,000,000.** Constr. 1958.

▲ **Calif., Palo Alto**—APARTMENT—Richard J. Wilson, 25481 Purissima Ave., Los Altos Hills, plans by Lincoln & Low, 579 University Ave., 10 story, 130 unit rein.-con. apartment, incl. swimming pool and parking facilities, El Camino Real and Del Medic Ave. **$1,500,000.**

▲ **Calif., San Mateo**—SHOPPING CENTER—San Mateo Commercial Co., c/o Irving Feldman, pres., c/o Leslie S. Nichols, archt., 454 Foress Ave., Palo Alto, shopping center in Baywood Plaza Subdivision at Parrott Dr. and Polhemus Rd. (supermarket, small stores, bank, parking facilities). **$2,000,000.** CD 10/30/56.

▲ **Del., Wilmington**—APARTMENT—E. J. Frankel, 2201 Pennsylvania Ave., Phila., Pa., plans by Morton E. Bleich, 321 Delaware Ave., 12 story, apartment, 1402 N. Franklin St. **$1,500,000.**

Fla., Tampa—Y. W. C. A. BLDG.—Y. W. C. A. Corp., 601 Twiggs St, plans by James H. Kennedy, First National Bank Bldg., 4 story Y. W. C. A. Bldg., with swimming pool, Pierce and Twiggs Sts., **$700,000.**

Ill., Mount Carroll—DORMITORY—Shimer College, Mount Carroll, plans by Mittelbusher & Tourtelot archts.-engrs., 36 S. State St., Chicago, Zone 3, men's dormitory. **$375,000.** CD 12/13.

▲ **Me., Waterville**—ADMINISTRATION, etc.—Colby College, J. Seelye Bixler, pres., Mayflower Hill, Waterville, plans by J. Frederick Larsen, Reynolds, N. C., administration bldg. **$450,000;** art and music bldg. **$650,000.** Contr. in 1958.

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▲ **Md., Baltimore**—HOSPITAL—Franklin Square Hospital, 110 N. Calhoun St., hospital, Old Philadelphia Rd., $8,000,000.

▲ **Mass., Boston**—HEALTH MUSEUM—Boston Museum of Science, Science Park, Charles River Dam, Boston, health museum. $3,500,000.

Mass., Brighton—MARKET—Gray's Market, Inc., 616 Washington St., 65,000 sq. ft. market addn., 616 Washington St. Approx. $500,000. Constr. 1958.

Mass., Chicopee—SHOPPING CENTER—Frank H. Cataldo, c/o Munson-Mallis & Reinhardt, Inc., archt., 121 Chestnut St., Springfield, shopping center, Fairview Section. $500,000. Constr. 1958.

Mass., Fairhaven—SHOPPING CENTER—Brockton Public Market, Inc., Stanton W. Davis, pres., 157 Main St., shopping center, incl. 15 stores, parking facilities. Approx. $600,000. Constr. 1958.

▲ **Mass., Leominster**—HOSPITAL—Leominster Hospital, C. H. Cooke, Jr., pres., Bd. Trustees, Hospital Rd., plans by Ellerbe & Co., First National Bank Bldg., St. Paul, Minn., hospital addn. $1,000,000. Constr. 1958.

▲ **Mass., Norwood** — RESIDENTIAL DEVELOPMENT — Owner, c/o Lester N. Lechter, archt., 739 Boylston St., Boston, residential development, incl. 350 houses, Westover area between Westover Parkway and New Pond. $7,750,000. Constr. 1958.

▲ **Mich., Detroit**—SHOPPING CENTER, etc.—Syndicate, c/o Louis M. Sarko, Arrow Wrecking Co., 4440 Wyoming St., plans by Lewis & King, 18936 Wyoming St., shopping center and office, Jefferson Ave. $5,000,000.

Minn., Aurora—CHURCH—Holy Rosary Parish, Rev. M. J. Godina, Aurora, plans by Maguola & Quick, 1004 Marquette Ave., Minneapolis, superstructure church. $350,000. Bids in March.

Minn., Minneapolis—SCHOOL—Christian Brothers, De La Salle High School, 25 Island Ave. West, plans by E. V. Schaefer & Assocs., 305 New York Bldg., St. Paul, high school addn., also remodeling present bldg. $600,000.

▲ **Nev., Reno**—OFFICE—Bell Co. of Nevada, c/o Genl. Mgr., 151 West St., plans by Ferris & Erskine, 777 Larue St., 55,400 sq. ft. rein.-con. telephone central office bldg., 1st and Lake Sts. $1,500,000. CD 8/13/53.

▲ **O., Columbus**—MEMORIAL, etc.—Lincoln Historical Assoc. of Ohio, Inc., 280 E. Broad St., plans by Kellam & Foley, 1857 Northwest Blvd., Lincoln Memorial, incl. library, museum, office. $1,000,000. Constr. 1958.

O., Columbus—SYNAGOGUE—Temple Israel, 925 Bryden St., plans by Percival Goodman, 1860 Broadway, New York 23, N. Y., synagogue. $350,000. Bids soon.

O., Dayton—COUNTRY CLUB—Plantation Country Club, Inc., c/o Wm. Sherman, 626 Albany St., country club and 18-hole golf par-3 course on 30 acre site on west side of Salem Pike, north of Precious Blood Convent, to incl. Z-shaped swim pool, clubhouse, motel, restaurant. $500,000.

▲ **O., Trotwood**—SHOPPING CENTER—Jack Davis & J. S. Davis, Sr., Salem Pike, plans by Paul H. Deneau, 31 W. 4th Bldg., Dayton, shopping center, 24 stores, on 40 acre site, U-shaped, with 2,500 car parking lot, S.W. corner Free Pike and Olive Rd. $1,500,000. Constr. in March.

O., Urbana—HOSPITAL—Comrs. Champaign Co., Court House, 50 bed hospital. $750,000.

▲ **Pa., Jeffersonville**—FINANCIAL CENTER—Jeffersonville, Pa. Financial Center, plans by Samuel I. Oshiver, 1913 Walnut St., Phila., financial center bldg. $1,000,000.

Pa., Williamsport—STUDENT UNION—Lycoming College, Williamsport, student union bldg. $500,000.

▲ **S. C., Columbia**—STORE—J. C. Penney Co., 330 W. 34 St., New York, N. Y., store, 1400 block. $1,000,000.

S. D., Brookings—RETIREMENT HOME—United Retirement Center, Brookings, plans by Fasth, Hillstrom & Horty, Inc., Midland Bank Bldg., Minneapolis, Minn., retirement home, incl. 56 resident rooms, lounges infirmery, dining area, kitchens, offices, and hobby rooms. $350,000.

Tex., Beaumont—HOTEL—Ridgewood Motor Hotel, c/o Ray Gilliam, Beaumont, hotel expansion. Approx. $350,000.

Tex., Bellaire—CHURCH—Bellaire Baptist Church, 4610 Bellaire Blvd., church. $750,000.

Tex., Dallas—CHAPEL—St. Lukes Episcopal Church, c/o Rev. Robert Swift, 5923 Royal Lane, chapel, $400,000.

Tex., El Paso—DWELLINGS—L & L Builders, 7 Half Moon Drive, 50 low-priced Hueco brick on rein.-con. dwellings. $350,000.

▲ **Tex., Grand Prairie**—DWELLINGS—Aubra Sharp, 124 E. Main, 20 dwellings $353,175; 17 dwellings $347,500; 25 dwellings $378,000; 22 dwellings $362,150 in "Sharpstown Heights Subdivision.

▲ **Tex., Houston**—DWELLINGS—Johnny Mitchell, c/o Houston Club Bldg., 500-3,000 dwelling constr. program at Lake Houston. $7,500,000-$35,000,000.

Tex., Houston—CHURCH—Park Place Methodist Church, 3827 Broadway, plans by Edward Bodet, 3415 Montrose Blvd., church addn. $500,000.

Tex., Houston—DWELLINGS—T. A. Robinson, Jr. and Geo. Meyer, c/o Meyerland Co., 4703 Jason St., 10 all masonry dwellings $365,500; 7 all masonry dwellings $350,000; 13 all masonry dwellings $390,000 in 5th Section of Meyerland Subdivision.

▲ **Tex., Houston**—APARTMENT UNITS—Spear Properties, Inc., c/o Wm. M. Spear, developer, 500 Milam St., Section 1, 28 apartment units, $2,240,000; Section 2, 16 apartment units, $1,280,000, on Sage Rd. in Tanglewood area.

Tex., Irving—CONVENT—Catholic Diocese of Dallas and Fort Worth, 2122 Kidwell, Dallas, plans by Adams & Adams, 701 Exchange Bldg., Dallas, convent. $350,000.

▲ **Tex., Pasadena**—OFFICE—Texas Gulf Coast Industries Inc., c/o Jas. C. Hestrand, trustee, Pasadena, plans by W. W. Crochet Co., 2421 W. Holcombe, Houston, 12 story office. $1,500,000. Municipal Eng. Co., c/o Roy Cates, Pasadena, Tex., engr.

Tex., San Antonio—DWELLINGS—E. J. Burke & Sons, 1100 Goliad Rd., 33 dwellings in Highland Hills, $350,000.

Tex., San Antonio—DWELLINGS—Busby, The Builder, 1901 Nacogdoches Rd., 8 all-masonry dwellings. Busby Addn. $360,000.

Tex., San Antonio—DWELLINGS—Carl Gaskin, Builder, Inc., 122 Northaven St., 26 dwellings adjacent Inspiration Hills. $365,500.

Tex., San Antonio—DWELLINGS—Al J. Keller, Builder, 123 Hubbard St., 22 dwellings in Northwood and Hollywood Estates. $363,335.

Tex., San Antonio—DWELLINGS—Fred May & Sons, Contractor, 1112 Bandera St., 28 dwellings in East Terrell and Sunset Hills. $348,000.

Tex., San Antonio—DWELLINGS—Orts Constr. Co., 939 Rittiman Rd., 35 low-priced dwellings in Wilshire Addition. $345,750.

Tex., San Antonio—DWELLINGS—Quincy Lee Constr. Co., 211 Olmos Dr. West, 27 dwellings. $356,500.

Tex., San Antonio—DWELLINGS—Ray Ellison Homes, Inc., 707 Bandera St., 38 dwellings, Lackland City. $368,000.

Vt., Middlebury—HOSPITAL—Porter Hospital, Richard C. Hubbard, chn. Planning Comn., South St., plans by Helge Westermann, 41 E. 42nd St., New York, N. Y., brick, concrete hospital expansion. $360,000. R. G. Vanderwiel, 9 Newbury St., Boston, Mass., mech. engr. Constr. 1958. CD 8/12.

▲ **Wis., Sheboygan**—SHOPPING CENTER—Krambo Food Stores, 1212 E. Opechee St., Appleton, shopping center, to be constr. in sections. $1,000,000. CD 6/9/54.

▲ **Wyo., Jackson**—HOSPITAL, etc.—St. John's Hospital, Jackson, plans by Kellogg & Kellogg, 2309 Warren Ave., Cheyenne, hospital and diagnostic treatment center. $1,135,000. Skidmore, Owings & Merrill, 3333 N. El Paso St., Colorado Springs, Colo., consult. engrs. CD 2/5.

Ont., Timmins—SUPERMARKET—Mike Ayoub, 273 Mountjoy St. S., plans by Rudolf Papenek & Assocs. Ltd., 25 Balsam St. S., 1 story, bsmnt. with mezzanine 12,000 sq. ft. supermarket. $500,000.

▲ **Que., Jonquiere**—HOUSING—Rosaria Morin, 2083 Roussel St., Chicoutimi housing development, Rang St., Francois. $1,000,000.

INDUSTRIAL BUILDINGS

Conn., New Haven—GENERATOR STATION—United Illuminating Co., 80 Temple St., plans by Jackson & Moreland, consult. engrs.-archts., 600 Park Sq. Bldg., Boston, Mass., enlarge English Generator Station. $500,000.

Conn., North Haven—ELECTRIC SUB-STATION—United Illuminating Co., 80 Temple St., New Haven, plans by Jackson & Moreland, consult. engrs.-archts., 600 Park Sq. Bldg., Boston, Mass., Sackett Point Electric Sub-Station, State St. $530,000.

▲ **Ky., Louisville**—PLANT—Louisville Gas & Electric Co., 311 W. Chestnut St., electricity generating unit at Cane Run Power Plant. $20,000,000.

N. J., Trenton—SALES AND SERVICE—Volks Motors, 451 Calhoun St., plans by Alfred Clauss, 114 W. State St., sales and service bldg. $100,000.

▲ **O., Cleveland**—RESEARCH CENTER, etc.—Tremco Mfg. Co., 8701 Kinsman Ave., Zone 4, research center and office bldg., Shaker Blvd. near E. 103 St. $1,000,000. Site changed. CD 4/18, under O., Cuyahoga Heights.

Pa., Butler—MANUFACTURING, etc.—Magnetics, Inc., Box 390 E. Butler, plans by Howard & Murphy, Mellon Bk. Bldg., 1 and 2 story, 120x249 ft. steel, brick, block, manufacturing bldg. and laboratory. $350,000.

Pa., Hamburg—PLANT—Harris Pine Mills, Inc., Pendleton, Ore., unfinished pine furniture mfg. plant. $300,000.

Pa., King of Prussia—PRINTING PLANT, etc.—American Baptist Publication Society, 1701 Chestnut St., Phila., plans by Vincent G. Kling, 917 Corinthian Ave., Phila., printing plant and office bldg. chapel. $250,000.

Pa., Mechanicburg—PARTS CENTER—International Business Machines Corp., South Rd., Poughkeepsie, N. Y. parts center bldg. addn. $300,000.

▲ **R. I., Warwick**—FACTORY—Hammel Dahl Co., Ed. T. Dahl, pres., 175 Post Rd., factory addn. $1,000,000. Constr. 1958.

▲ **Tex., Evadale**—PLANT—East Texas Pulp & Paper Co., Evadale, paper mill, recovery plant with all auxiliary bldgs. $7,000,000-$8,000,000.

Tex., Hawley—PUMPING STATION—Cosden Petroleum Corp., Big Spring, 250 hp. pumping station. $150,000.

Tex., Waxahachie—FACTORY—Waxahachie Garment Co., c/o Rex Shelton, mgr., Waxahachie, garment mfg. factory. $175,000.

Utah, Ogden—WAREHOUSE—Utah Poultry & Farmers Co-op., C. K. Ferre, mgr., 1800 SW Temple, Salt Lake City, 75x250 ft. warehouse, on 17 acre site at 14th and Wall Ave. $150,000. Constr. 1958.

▲ **Wyo., Riverton** — MILL — Fremont Minerals, Inc., Riverton, plans by H. L. Hazen, Inc., Farmers Union Bldg., Denver, Colo. (metallurgical design), uranium mill. $3,500,000. Western-Knapp Eng. Co., 650 5 Ave., San Francisco, Calif., consult. engr.

UNCLASSIFIED

Connecticut—TRANSMISSION LINE—United Illuminating Co., 80 Temple St., New Haven, 4 mi. transmission line from English Generator Station, New Haven along N. Y., N. H. & H. R.R. to Sackett Point Road Sub-station, North Haven (Hamden, New Haven and North Haven) $715,000. Jackson & Moreland, 600 Park Sq. Bldg., Boston, Mass., consult. engrs.-archts.

Connecticut—ELECTRIC TRANSMISSION LINES—United Illuminating Co., 80 Temple St., New Haven, electric transmission line, 115,000 volts, from proposed Sackett Point Sub-station, North Haven to Woodbridge (Hamden, North Haven and Woodbridge). $850,000. Jackson & Moreland, 500 Park Sq. Bldg., Boston, Mass., archts.-consult. engrs.

Conn., Bridgeport—ELECTRIC DISTRIBUTION SYSTEM—United Illuminating Co., 80 Temple St., New Haven, underground addns. to electric distribution system. $235,950.

Conn., New Haven—ELECTRIC DISTRIBUTION SYSTEM—United Illuminating Co., 80 Temple St., underground addns. to electric distribution system. $240,000.

Conn., Stamford—PARK IMPRVS.—City, City Hall, plans by Thomas H. Yardley, 1758 Newfield Ave., bldg. and site imprvs., Cummings Park. $107,000. Brown & Blauvelt, 468 Fourth Ave., New York, N. Y., consult. engrs. CD 11/28/56.

Conn., Stamford—PARK IMPRVS.—City, City Hall, plans by Thomas H. Yardley, 1758 Newfield Ave., bldg. and site imprv., Southfield Park, Dyke Park, Springdale Park, Woodside Park. $104,000. Brown & Blauvelt, 468 Fourth Ave., New York, N. Y., consult. engrs. CD 1/30.

† **Kentucky**—PARK FACILITIES—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Meriwether-Marye & Assoc., archts. and consult. engrs., 248 E. Short St., Lexington, expansion of facilities at Audabon State Park, Henderson, Henderson Co. $225,250.

† **Kentucky**—PARK FACILITIES—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Meriwether-Marye & Assoc., archts. and consult. engrs., 248 E. Short St., Lexington, Ky., expansion of facilities at Carter Caves State Park, Ashland, Boyd Co., $275,750; Natural Bridge State Park, Lexington, Fayette Co., $319,000; Lake Cumberland State Park, Jamestown, Russell Co., $334,500.

Kentucky—ELECTRICAL DISTRIBUTION SYS.—Flemingsburg Mason Rural Electric Co-operative, Flemingsburg, 47 mi. electric distr. sys.; 9 mi. tie line, new 3,000 K.V.A. sub-stations, Elliott, Bath, Carter, Greenup, Rowan, Lawrence, Monroe and Menifee Counties. $470,000. Patterson & Dewar, 208 Rutland Bldg., Decatur, Ga., consult. engrs. CD 3/2/50.

Nebraska—RURAL DISTRIBUTION LINES—Hartington Telephone Co., Hartington, 160 mi. lines, Cedar Co. $100,000.

† **O., Lacarne**—MAINTENANCE SHOP—U. S. Eng., P. O. Box 2127, Huntington, W. Va., plans by Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd. S.W., Roanoke 16, Va., Guided Missile Maintenance Shop, FY 56 Program, at Erie Ordnance Depot. CD 3/26.

▲ **Okla., Tulsa** — FAIRGROUND IMPRVS. — City, City Hall, stadium and baseball field at Fairgrounds. $1,150,000. W. R. Wooten, City Hall, engr.

Pa., Harrisburg—PARKING AREA—General State Auth., 18th and Herr Sts., constr. bituminous hardtop parking area at State Farm Show Bldg. and hardtopping grounds in vicinity of Farm Show Bldg. $144,000. Westmoreland Eng. Co., Monassen, consult. engrs. A. F. Jones, c/o. owner, ch. engr. CD 1/28.

Tex., Austin—ELECTRICAL DISTRIBUTION, etc.—Bd. for Texas State Hospitals & Special Schools, 4405 Lamar Blvd., electrical distr. sys. and street lighting, for Austin State Hospital, $161,000. B. Segall, Jr., 705 Lamar St., consult. engr.

Tex., Galena Park—AUTO PARKING CENTER, etc.—U. S. Gypsum Co., c/o C. H. Shaver, bd. chn., 300 W. Adams St., Chicago, Ill. Hdqrs. and Galena Park, Tex., auto parking center and paved plant adjacent area. $100,000.

Tex., San Antonio—SWIMMING POOLS—City, City Hall, rein.-con. swimming pool Southside Lyons area, $85,000; rein.-con. swimming pool at Lincoln Park, $85,000; rein.-con. swimming pool at Southside Quandrant, $85,000; rein.-con. swimming pool in Dellview Addn. $85,000.

Wash., Hoquiam—SWIMMING POOL—City, City Hall, $250,000 bond election Mar. 5, swimming pool.

▲ **Wash., Seattle**—SUB-STATIONS—City, County-City Bldg., 15 distribution sub-stations for City Light. $1,750,000. Constr. planned during next two years. P. J. Raver, City Light Bldg., Zone 4, city light supt.

Wash., Tacoma—GOLF COURSE—City, City Hall, will not construct municipal golf course $500,000. Project abandoned. CD 7/26.

Wash., Tacoma—LIGHTING SYSTEMS—City, City Hall, street lighting systems, $842,000. Constr. 1958-59.

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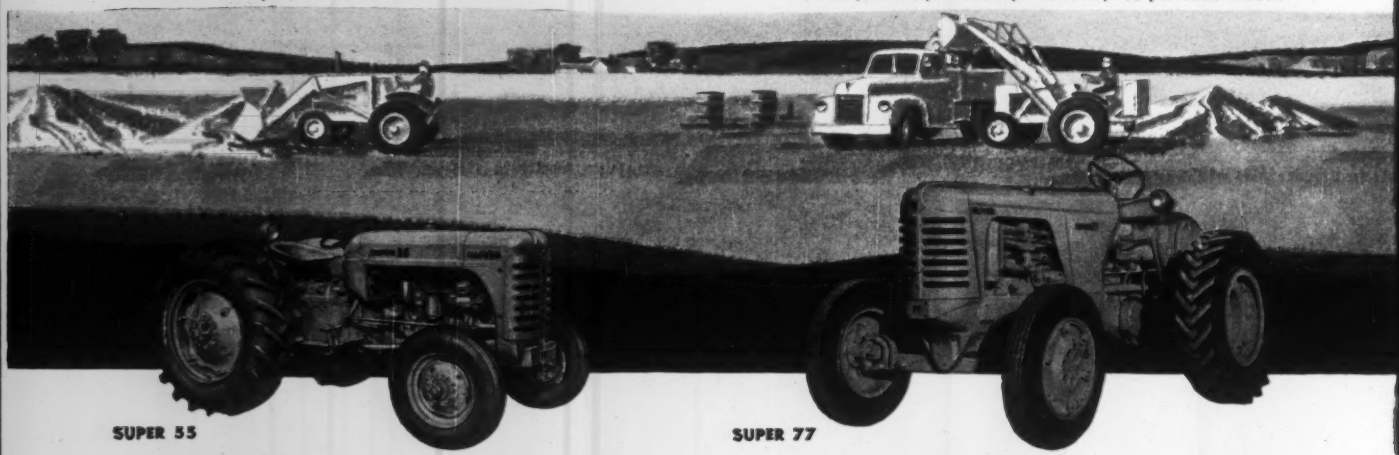
OC-12

—62.8 gas or 61.4 diesel net engine h.p. The high performing, high efficiency crawler of long-run, low maintenance. Full-time working power on both tracks. Mounts dozer, trail-builder, scarifier, side boom, winch. Also, 1½-yd. loader model.



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—39.1 gas or 37.0 diesel net engine h.p. Small investment gets you big income job range. Works with full line of front, side and three-point hitch attachments—dozer, 11-cu. ft. loader, trencher, fork lift, mower.

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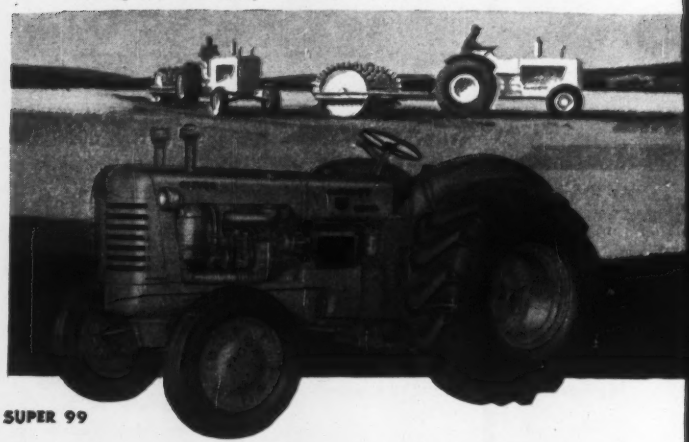

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—103 net engine h.p. Most powerful diesel wheel tractor of its type. For tough drawbar work. Light touch steering. Short turn radius. Torque converter available. Also 1¼-yd. loader model.

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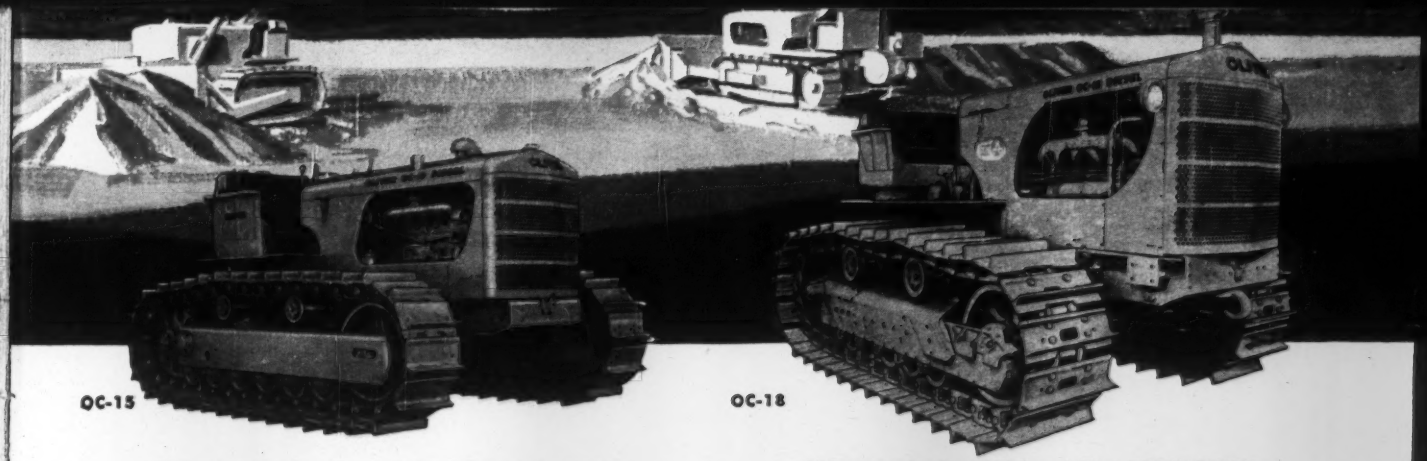

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SUPER 88

—**60.8 gas or 58.3 diesel net engine h.p.** Nothing faster in its class for rapid cycle loading (3/4 yd.) or trenching (1/2 yd.)...or at any work you give it. Easy handling, wide travel speed range.

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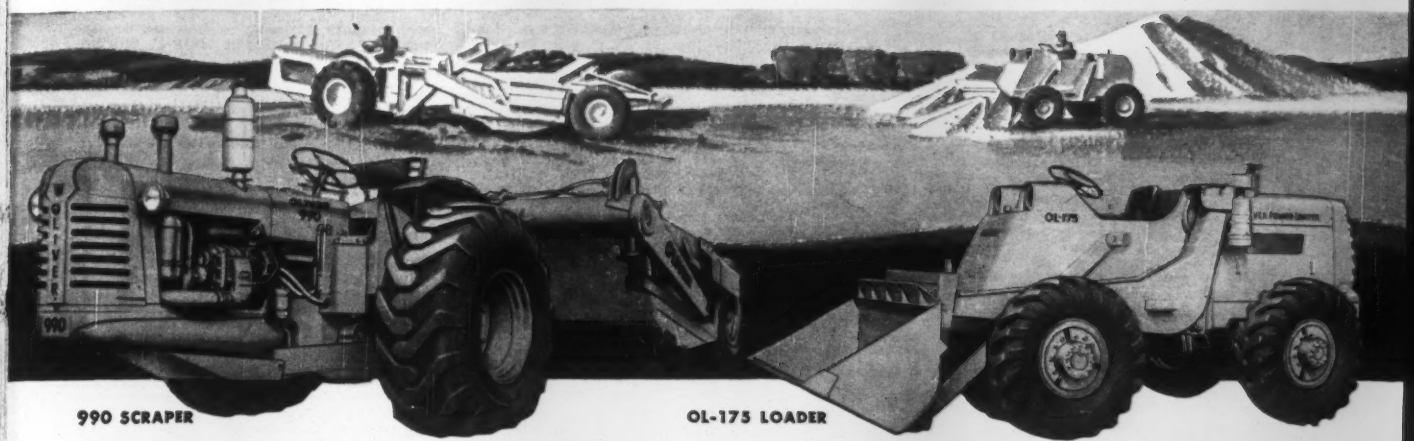

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 14 Massachusetts January 15 Maine

STREETS AND ROADS

January 15 Maine January 21, 28 Massachusetts

Mass., Weymouth—BARRACK IMPRVS.—BA 1/17—Dist. P. Wks. Office, IND, 495 Summer St., Boston, Zone 10, repairs to Barrack No. 18, Naval Air Station, South Weymouth, NBy-16106, Spec. No. 16105/57. Plans deposit $25. CD 8/29/52.

† **Massachusetts**—BA 1/17—U. S. Eng., 150 Causeway St., Boston, Mass., repairs to dike at Long Beach, Plymouth, CIVENG-19-016-58-47.

Mass., Northampton—BA 2/3—City, Bd. Sewer Comrs., City Hall, sewage treatment plant. $850,000. Morgenroth & Assoc., Inc., 294 Washington St., Boston, engr. CD 5/11/55.

BUILDINGS—BA

N. H., Durham—POST OFFICE—BA 1/28—General Services Admin., 6119-18 and F Sts. N.W., Wash., D. C., construct and finance red brick and limestone post office, Madbury Rd. and Main St. $390,000. Irving W. Hersey Assoc., Town Hall Bldg., Durham, and Koehler & Isaak, 1880 Elm St., Manchester, archts. CD 5/9/56, under Public Bldgs.

▲ **Vt., Burlington**—FEDERAL—BA 1/28—General Service Admin., 18 and F Sts., Wash., D. C., c/o Regional Office No. 1-620 P.O. and Courthouse, Boston, Mass., construct and finance 135 sq. ft. federal bldg., Pearl and Elmwood Aves. $2,710,000. Freeman, French & Freeman, 158 Bank St., archts. CD 2/7/56, under Public Bldgs.

▲ **Mass., Worcester**—HOSPITAL—BA 2/4—City, Trustees City Hospital, 71 Jacques Ave., hospital addn., alterations. $3,000,000. Plans deposit $111. Isadore & Zachary Rosenfeld and E. Todd Wheeler, 45 W. 45th St., New York, N. Y., archts. Farkas & Barron, 5 Beekman St., New York, N. Y., structural engrs. CD 12/3/56.

HEAVY CONSTRUCTION—LB & CA

CONNECTICUT—State Hy. Dpt, 165 Capitol Ave., Hartford,

Mariani Constr. Co., 222 Forbes Ave., New Haven, Conn., CA **$320,076**, 6 span composite Rolled Beam Bridge with rein.-conc. pavement, Maple St., Ansonia Co. Bids Nov. 18, awarded Dec. 20. CD 11/22.

City of New Britain, City Hall, New Britain, Conn., rejected bids, pump house, White Bridge Station, BRISTOL, CONN. LB **$93,444**. CD 12/26, under LB.

BUILDINGS—LB & CA

Blanchard Stebbins, Inc., 330 Lincoln St., Manchester, N. H. CA **$890,000** DORMITORY for men, on campus, DURHAM, N. H. University of New Hampshire, Office President, Thompson Hall, Durham, N. H. Bids Dec. 11. CD 12/23, under LB.

L. D. Phillip Constr. Co., Inc., 8 Main St., Westfield, Mass., LB **$591,871**, est. $500,000, Hugh Scott Streiber Memorial ELEMENTARY SCHOOL, off Telegraph Ave., CHICOPEE, MASS. City, John L. Fitzpatrick, supt., 135 Grape St., Chicopee, Mass. Henry J. Tessier, 226 Dwight St., Springfield, Mass., archts. Bids Dec. 20. CD 12/6.

Jarvis Realty Co., 654 Center St., Manchester, Conn., Owner Builds, **$750,200**, 44 addnl. HOUSES, Brent Rd., Woodhill Heights, MANCHESTER, CONN. CD 11/16/56.

Schnier & Shlomberg, 18 Raymond Rd., West Hartford, Conn., Owner Builds, **$989,450**, 48 HOUSES "Knollwood Estates", NEWINGTON, CONN. CD 11/21.

▲ **W. J. Megin, Inc.**, 51 Elm St., Naugatuck, Conn., CA **$3,183,659**, 2 HOSPITAL WINGS, NEW LONDON, Conn. Lawrence & Memorial Associated Hospitals, 365 Montauk Ave., New London, Conn. CD 11/25/57, under LB.

▲ **Wexler Constr. Co.**, 118 Needham St., Newton Highlands, Mass., LB **$1,903,500**, 150-unit moderate rental HOUSING, WATERBURY, CONN. Waterbury Housing Auth., 156 Harris Circle, Waterbury, Conn. Bids Dec. 19. CD 11/27.

▲ **Carter Constr. Co.**, 1125 New Britain Ave., West Hartford, Conn., Owner Builds, **$1,460,000**, 73 HOUSES, "Colonial Village", Valley Crest Drive, WEST HARTFORD, Conn.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 24 Pennsylvania January 30 New York

STREETS AND ROADS

January 24 Pennsylvania January 28 Maryland

January 30 New York

N. Y., Idlewild—HANGAR—BA 1/14—The Port of New York Auth., 111 Eighth Ave., New York, Zone 11, Contr. NYA-402.225, taking samples and making borings at site and in vicinity of new Hangar No. 17, New York International Airport. CD 2/25/53.

Md., Towson — BA 1/16 — Baltimore County Executive, County Office Bldg., Zone 4, Contract 596 D. S. & W. Group Bids, storm drains, sewers, water lines. Plans deposit $5. John B. Funk, c/o owner, ch. engr.

N. J., Port Newark—BA 1/21—At office Chief Engineer Port of New York Auth., 111 8 Ave., New York 11, N. Y., excavation and disposal of unsuitable material for reclamation of land, Contr. PN-490.001. Plans deposit $30. CD 12/17, under Public Bldgs.

N. Y., Idlewild—HANGAR—BA 1/21—The Port of New York Auth., 111 Eighth Ave., New York, Zone 11, landscaping at Hangar No. 12 (TWA) New York International Airport, Contr. NYA-780.003. CD 2/25/53.

N. Y., New York—BRIDGE, etc.—BA 1/21—The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., Contr. HT-190.002, constr. pedestrian bridge (not incl. structural steel therefor) alterations to pavements, sidewalks and lighting and other misc. work for imprv. New York Exit from Holland Tunnel. Plans deposit $30. CD 1/18/54, under New York and New Jersey.

† **D. C., Wash.** — SUBWAY — BA 1/29 — Architect of Capitol, U. S. Capitol, Wash., D. C., constr. subway between Senate Office Bldgs. and U. S. Capitol Bldg. Plans deposit $150.

N. Y., Idlewild—COMMISSARY—BA 2/4—The Port of New York Auth., 111 Eighth Ave., New York, Zone 11, Contr. NYA-420.002, commissary bldg., New York International Airport, with paving and utilities. Plans deposit $50. CD 2/25/53.

BUILDINGS—BA

D. C., Wash.—PARKING GARAGE—BA 1/13—"H" St. and North Capitol Parking Syndicate, Colorado Bldg., parking garage, "H" and Defrees Sts., N. W. Walter Marlowe 3200 "P" St. N. W., archt. CD 4/11.

N. Y., New York—PARISH—BA 1/16—First Presbyterian Church, 12 W. 12 St., Zone 11, parish bldg. at site. $750,000. Edgar A. Tafel, 14 E. 11 St., Zone 3, archt. CD 3/19.

▲ **N. Y., Far Rockaway**—SCHOOL—BA 1/23—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, modernization of and new addn. to existing Far Rockaway High School, Beach 25 St. and Ocean Creek Blvd., Est. $2,200,000. Plans deposit $25 for general constr.; $15 each for plumbing and drainage; heating and ventilating, $20 for electrical and lighting fixtures. (Correction—bid date). CD 12/19.

HEAVY CONSTRUCTION—LB & CA

▲ **Ralph Tomasetti & Co.**, 1611 73 St., Brooklyn 4, N. Y. LB **$1,178,051** (8 bidders) combined sewer, appurtenances in 11 Ave. from point about 95 ft. west of Whitestone Parkway, westerly service roadway to Whitestone Parkway, westerly service roadway, thence easterly across Whitestone Parkway, to intersection of 145 Pl. and 13 Ave.; 13 Ave. from 145 Pl. to 147 St. across Cross Island Parkway from northerly service roadway to intersection of 13 Ave. and 147 St.; 147 St. from 13 to 15 Aves. 15 Rd. from 15 Ave. to 149 St. 149 St. from 15 to 16 Rds.; 16 Rd. from 149 to 150 Sts., 3 Ward, NEW YORK. President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd. Kew Gardens 24, N. Y. Bids Dec. 26. CD 12/17.

Rand Constr. Co., 114 E. 32 St., New York 16, N. Y. LB **$784,000** (12 bidders) Contr. BP-140.005, building finishes Pier No. 2, Brooklyn-Port Authority Piers, BROOKLYN, N. Y. The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Dec. 17. CD 12/2.

Ralph D. Young, Inc., 4943 Seneca St., Ebenezer, N. Y., CA **$199,702**, water lines in District 2, CLARENCE, N. Y. Town, Town Hall, Clarence Circle, Clarence, N. Y. Harold J. Senior, 5488 Main St., Williamsville, N. Y., engr. Bids Dec. 11. CD 11/26.

McElwee-Courbis Constr. Co., Inc. 6209 Cresent Blvd., P. O. Box 95, Camden, N. J., LB **$746,000**, Section A, sewage treatment plant; LB **$93,085**, Section A, optional items, incl. underground utilities, site imprvs. bldgs. and treatment structures and equip.; LB **$839,085**, Total Section A Bid; LB **$110,000**, Section "B" plumbing and process piping, MASSENA, N. Y. Village Bd. of Village of Massena, Village Hall, Massena, N. Y. Bids Dec. 16. CD 11/19.
Peter Kiewit Sons Co., P. O. Box 119, Waddington N. Y., LB **$536,147** Total Section S Intercepting sewers, incl. Section S-D, S-E, S-F, S-G, S-H, S-J and S-K (Massena, N. Y.).

Daniel F. MacNamee & Co., Inc., 271 North Ave., New Rochelle, N. Y., CA **$82,076**. resurf. Central Park and Parker Aves., Contr. 941, WHITE PLAINS, N. Y. Dept. P. Wks., Westchester Co County Office Bldg., White Plains, N. Y. Bids Dec. 11.

▲ **Ritter Bros.**, 1511 N. Cameron St., Harrisburg, Pa. CA **$2,110,863** general constr. 2 levels underground parking garage plus surf. parking on roof capitol Park Extension area, HARRISBURG, PA. General State Auth. 18 and Herr Sts., Harrisburg, Pa. Bids Dec. 18, CD 12/20, under LB;
Kimbob, Inc., Box 127, Harrisburg, Pa. CA **$694,905**. adjoining of street constr. (Harrisburg, Pa.)

Engstrom Wynn, 1117 Chaplaine St., Wheeling W. Va., LB **$662,850**, 5,800 lin. ft. 12 and 18 in. interceptor sewer, 2 sewage lift stations, treatment plant, 2 sludge registers with floating covers, sewage treatment, NEW BRIGHTON, PA. New Brighton Borough, New Brighton, Pa. Bids Dec. 11. CD 11/20.

Ralph Rizzi, 6737 Verona Rd., Verona, Pa. CA **$196,477** grading, paving and curbing Broadhead Fordney Rd. and Mazette Place, PITTSBURGH, PA. City, City-County Bldg., Pittsburgh, Pa. Bids Dec. 11. CD 11/11/43.

▲ **Intercounty Constr. Corp.**, 4720 Baltimore Ave., Hyattsville, Md. LB **$553,571** Div. A, trunk sanitary sewers from treatment plant to Temona Pump station, PLEASANT HILLS, PA. Pleasant Hills Auth., 72 Clairton Blvd., Pittsburgh 2, Pa. Bids Nov. 14, CD 10/18;
Easton Constr. Co., Inc., R.D. 2, Washington Rd., Canonsburg, Pa. LB **$162,344**, Div. B trunk sanitary sewers Mineral Run Sewer and force main (Pleasant Hills, Pa.);
Ralph A. Marino, 5654 Callowhill St., Pittsburgh, 6, Pa. LB **$319,298** Div. C trunk sanitary sewers pump station to Pleasant Hills (Pleasant-Hill, Pa.);
Nicassio Constr. Co., 6719 Verona Rd., Verona, Pa., LB **$329,753** trunk sanitary sewers from Bruceton to Baldwin and Bethel Boroughs (Pleasant-Hills, Pa.);
Rust Engineering Co., 930 Fort Duquesne Blvd., Pittsburgh 22, Pa. LB **$1,387,890** Div. E Sec. 1 sewage treatment plant and pumping station general constr. (Pleasant Hills, Pa.);
Perry Electric Co., 95 S. St., Pittsburgh 3, Pa., LB **$84,000**, Div. E Sec. II, sewage treatment plant and pumping station-elec. (Pleasant Hills, Pa.) No bids received on Sections IV and V for sewage treatment plant heating and ventilation.

▲ **Lewis C. Bowers & Sons**, Princeton, N. J. CA **$2,250,000**. 2 and 3 story, 50,000 sq. ft. steel frame TV station and office, WILKINSBURG, PA. W. T. A. E. Inc., Carlton House, Pittsburgh, Pa. Fulmer & Bowers, 341 Nassau St., Princeton, N. J., archts.

BUILDINGS—LB & CA

† **HRH Constr. Corp.**, 16 W. 46th St., New York 19, N. Y. CA **$753,700**. BUILDINGS, OFFICES, BARRACKS, MESS FACILITIES, TERMINAL and boat basin, Coast Guard Marine Headquarters, NEW YORK, N. Y. U. S. Treas. Dpt., Custom House, Bowling Green, New York, N. Y. Bids Dec. 16. CD 12/12.

Joseph J. Dollinger Associates, 19 Main St., White Plains, N. Y., CA Est. **$350,000**. 35 HOMES, Barger St. near Taconic Parkway, YORKTOWN HEIGHTS, N. Y. Taconic Lake Country Club, c/o contractor.

▲ **Dean Constr. Co.**, 29-28 41 Ave., Long Island City, N. Y., CA **$1,003,973**, general contract HIGH SCHOOL, 18 Ave. and New Bedford Rd., BELMAR, N. J. Bd. Educ., Wall Twp., Belmar, N. J. Bids Dec. 18, CD 10/22.

▲ **Austin Co.**, 450 W. 1st Ave., Roselle, N. J., CA Est. **$1,000,000**, design and construct 1 and 2 story, 120,000 sq. ft. CARD MANUFACTURING PLANT, DAYTON, N. J., International Business Machines Corp., 590 Madison Ave., New York 22, N. Y.

Wynnewood Colony, c/o David Cronheim, 39 Branford Place, Newark, N. J., Owner Builds. **$750,000**. 50 HOMES, on Jones Siding Rd., off Rte. 9, FREEHOLD, N. J.

Graziano Constr. Co., 7321 Frankstown Ave., Pittsburgh, Pa. CA **$973,900**. 6 level L Shaped rein.-con. PARKING GARAGE, 8th, 9th and Duquesne Way, PITTSBURGH, PA. Pittsburgh P. Parking Auth. 200 Ross St., Pittsburgh, Pa. Bids Nov. 7. CD 11/29, under LB.

Carozza Co., 3625 Wilkins Ave., Baltimore 29, MD. CA **$874,900**, 2 story, brick, concrete, steel, Edgewood ELEMENTARY SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Zone 2, Md. Bids Dec. 11. CD 12/18, under LB.

MacLeod Constr. Co., 2500 Frederick Ave., Baltimore 23, Md. CA **$673,000**, brick, concrete, steel limestone, trim, block Western HEALTH DISTRICT BUILDING, Lombard and Penn Sts., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Dec. 18. CD 12/5.

SOUTH

HEAVY CONSTRUCTION—BA

† **Ala., Fort Rucker**—ARPON PAVEMENT—BA 1/16—U. S. Eng., 2301 Grant St., Mobile, aircraft apron pavement, wash stands, and utilities and flight instructor bldg. at Auxiliary Field No. 1. CD 9/18, under Public Bldgs.

† **Ala., Fort Rucker**—FLIGHT INSTRUCTOR BLDG.—BA 1/21—U. S. Eng., 2301 Grant St., Mobile, 2 story, 11,400 sq. ft. flight instructor wing at Aux. Field No. 1. CD 9/18, under Public Bldgs.

† **Virginia**—BA 1/23—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington,
Proj. IH3—bridge over James River structural steel or prestressed concrete superstructure. CD- 9/30.

† **Louisiana**—BA 1/24—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, restoration and riprap slope pavement on Triumph Levee, consisting of approx. 1,200 cu. yd. shell, 8,400 tons of riprap, Plaquemine Parish, Inv. 58-163. CD 9/10.

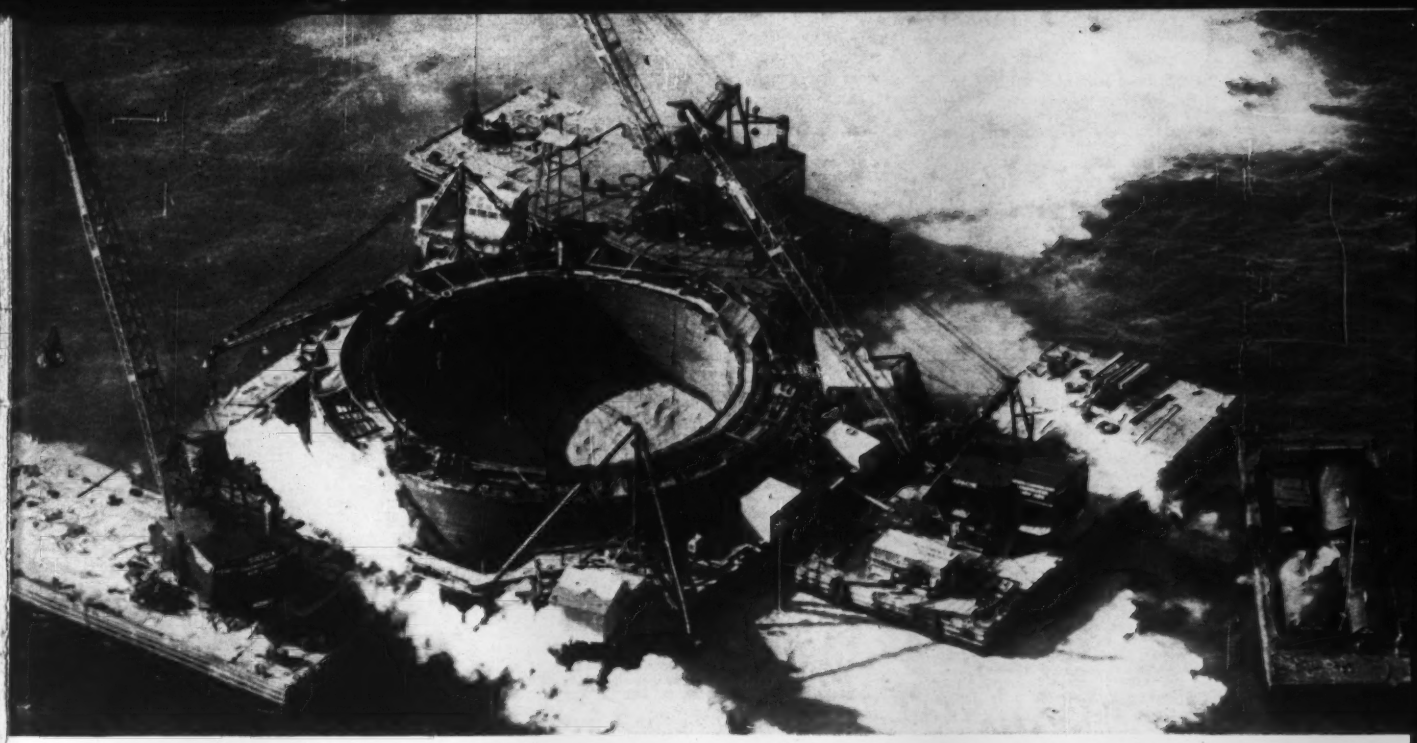
† **Fla., Panama City**—AIRPORT IMPRVS.—BA About 2/4—U. S. Eng., 2301 Grant St., Mobile 7, Ala., constr. addn. to AC & W Operations Facilities, 1 story to existing bldg., grading, parking area, etc., Tyndall Air Force Base, ENG-01-076-58-34. CD 9/18.

BUILDINGS—BA

Ga., Atlanta—SCHOOL—BA 1/14—Bd. Educ., City Hall, Beecher Hills Elementary School, Plans deposit $50. A. Thomas Bradbury & Assocs., 60-Fifth St. N. E., archts. CD 4/30.

† **Ala., Opp**—ARMY RESERVE TRAINING CENTER—BA 1/15—U. S. Eng., 2301 Grant St., Mobile, 1 story,

(Continued on page 94)



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(Continued from page 92)

4,500 sq. ft. army reserve training center on Ala. State Hy. 12, about ¼ mi. from city limits.

Va., Staunton—SCHOOL—BA 1/15—Virginia School for Deaf & Blind, Staunton, school. Plans deposit $25. Joseph Saunders, 121 S. Columbus St., Alexandria, archt. CD 4/13/56.

† **Ala., Huntsville**—BA 1/16—U. S. Eng., 2301 Grant St., Mobile, constr. 250,000 gal. steel elevated water tank at Redstone Arsenal, ENG-01-076-58-30. CD 12/20.

Ky., Louisville—WAREHOUSE, etc.—BA 1/31—The Kroger Co., 35 E. 7th St., Cincinnati, O. 1 story, no bsmnt., 85,000 sq. ft. concrete slab brick on concrete block, steel frame warehouse and office, incl. railroad siding and paving. $800,000. Extended date. Hixon-Tarter & Assoc., 2306 Park Ave., archts. and Beinecke & Reuhlman, 626 Broadway, engrs., both Cincinnati, O. CD 12/12.

BUILDINGS—SLC

Miss., Jackson—SHOPPING CENTER—Delta Mart Center, D. J. Barefield, pres., 113 N. President St., soon lets contract 163,000 sq. ft., concrete, masonry walls, steel joints, etc. shopping center, incl. 40,000 sq. ft. parking area. Over $350,000. John Miller Mallingly, Medical Bldg., archt.

HEAVY CONSTRUCTION—LB & CA

† **VIRGINIA**—Bureau P. Rds., 1440 Columbia Pike, Arlington,

Albert Bros. Contractors Inc., Salem, Va. CA **$842,650** (16 bidders) Proj. IN1-7-2 mi. grading, drainage crushed aggreg. base and other work from US 220 to Secondary Rte 690 Blue Ridge Parkway. Bids Dec. 12, awarded Dec. 20. CD 12/18, under LB 1.

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., 1221 E. Broad St., Richmond,

Va.—**Laramore Constr. Co., Inc.**, Box 348, Danville, Va. CA **$502,506** various soil aggreg. base bit. top and bridge 4.45 mi. Rte 58, State Proj. 0058-041-012 031-033-020; Fed. Proj. F-FG-024-2 (1) Halifax Co.

Va.—**E. F. Blankenship Co.**, 1308 W. Main St., Alem, Va. CA **$525,653** b. conc. and 2 bridges, 1.63 mi. Rte 220, State Proj. 0220-044-033-028, Fed. Prd. 844-33-28-29-71, Henry Co. and City of Martinsville;

Va.—**W. H. Scott, Inc.**, Box 418, Franklin, Va. and **E. V. Williams Co. Inc.** 1269 E. Princess Anne Rd., Norfolk, Va. CA **$1,803,885,** rein-con. paving 1.6 mi. Rte 404 and 2 bridges State Proj. 0404-135-071-072-073, Fed. Proj. I-122-1 (9), City of Warwick. Bids Dec. 18. Grand total $2,832,044. CD 12/26, under LB.

† **Carpenter Constr. Co.**, Bank of Commerce Bldg. Norfolk, Va. LB **$409,693** (6 bidders) equipment housing, foundation and utilities, LANGLEY FIELD, VA. National Advisory Committee for Aeronautics, Langley Field, Va. Bids Dec. 20 CD 8/24/56.

▲ **L. S. Coleman Co.**, First Nat'l. Bank Bldge., St. Albans, W. Va., CA Total est. **$1,400,000,** drainage and grading work on right-of-way, install 3.8 mi. railroad track to new Union Carbide Corp. plant near WINFIELD, VA., Chesapeake & Ohio R. R., Term Tower, Cleveland, O.

† **Atkinson Dredging Co.**, Great Brdg., Norfolk, Va., CA **$117,600,** Contr. IFB CIVENG-31-075-58-16, Maintenance dredging AIWW, Wilmington Dist., NORTH CAROLINA. U. S. Eng., 308 Customhouse, Wilmington, N. C. CD 5/4/56.

▲ **Barger Constr. Co., Inc.**, Mooresville, N. C., LB **$1,725,800,** War Memorial Coliseum, GREENSBORO, N. C. City, City Hall, Greensboro, N. C. Bids Dec. 11, CD 12/6.

Curtis L. Laughlin, 1817 Minosa Rd., Greensboro, N. C., CA **$80,905,** municipal swimming pool imprvs., HIGH POINT, N. C. City of High Point, City Hall, High Point, N. C. Wm F. Freeman, Inc., 116 E. Commerce St., High Point, N. C., engr.

† **B. B. Saxon Constr. Co.**, P. O. Box 683, Fort Walton Beach, Fla., CA **$177,070** Contr. A. F. 08-(603) 4208 constr. Range Computing Laboratory, #A/1 58-9, EGLIN AIR FORCE BASE, FLA. U. S. Eng., 2401 Grant St., Mobile, Ala. CD 9/17/57.

Greenhut Constr. Co., Box 1175, 23 S. "A" St., Pensacola, Fla., LB **$192,468,** G. A. T. Bldg. for BOMARC-OST. Facilities ENG. 01-076-58-21, EGLIN AIR FORCE BASE (AUX 9), FLA. U. S. Eng. 2301 Grant St., Mobile, Ala. Bids Dec. 19. CD 11/22.

† **C. T. Dawkins**, 420 S. Rome Ave., Tampa, Fla., LB **$104,981,** Bid "A", steel sheet pile Bulkhead, related work, U. S. Coast Guard Depot, Inv. 8122, ST. PETERSBURG, FLA. U. S. A. Commanding Officer, 7th Coast Guard Dist., 150 SE 3rd St., Miama, Fla., Bids Dec. 20. CD 12/5;
W. H. Armston Co., Inc., 357 Scotland St., Dunedin, Fla., LB **$124,270** Bid "B", steel sheet pile bulkhead, related work, U. S. Coast Guard Depot, (St. Petersburg, Fla.)

ALABAMA—State Hy. Dpt., Montgomery,

Ala.—**Goodwin & Murphree**, Troy, Ala., LB **$290,765,** one interchange 3 underpasses on Rt. 65 east of Clanton, Chilton Co.; LB **$232,549** one interchange 3 underpasses on Interstate Rte. 85 between Opelika and Auburn, Lee Co.;

Ala.—**C. F. Halstead**, 4307 S. Court St., Montgomery, Ala., LB **$242,390.** bridges over Bushy and Brunt Corn Creeks on Interstate Rte. 65, Conecuh Co. Bids Dec. 20. CD 12/11.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,

MacDougald Constr. Co., 1625 Northside Dr., Atlanta, Ga. LB **$2,186,613.** grading, draining, paving 8 mi. from 1.1 mi. N. E. of Clanton northwesterly on Route 65, Chilton Co. Bids Dec. 20. CD 12/11.

▲† **Hendry Corp.**, Box 13228, Tampa, Fla., CA **$1,180,941,** dredging, 7,291,000 cu. yd. channel thru Devil's swamp for Baton Rouge Harbor, Baton Rouge, Inv. 58-71, LOUISIANA, U. S. Eng., foot of Prytania St., New Orleans, 9, La. Bids Nov. 8, awarded Dec. 26. CD 11/25, under LB.

† **T. L. James & Co., Inc.**, Ruston, La., CA **$321,060** Item M-41.6-R, Riguad School Leveee, riprap slope pavement, Plaquemines Parish, CIVENG-16-047-58-103, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans 9, La. CD 9/10.

Meyer & Sons Constr. Co., 1115 Poland Ave., New Orleans, La., LB **$169,699,** water distr. Lines, GRETNA, La. Bd Comrs., East Jefferson Water Works Dist. 1, Gretna, La. T. Edward Ernst, 822 Perdido St., New Orleans, La. Bids Dec. 12. CD 10/20/50.

Atlas Constr. Co., Box 1006, Texarkana, Tex., LB **$98,894,** swimming pool, boathouse, etc., MORGAN CITY, LA. City, Emile J. Lehmann, secy., New Police Station and Court House, MORGAN CITY, LA. Bids Dec. 10. CD 12/9.

† **Columbus Constr. Co.**, P. O. Box 1406, Columbus, Ga., CA **$168,043** section 1-E of Memphis, Wolf River Noconnah Creek, Tennessee Proj. incl. constr. concrete floodwall and appurtenant structures located along left bank of Wolf River in reach between Marble and Weakley Aves. in NW part of city of Memphis, Shelby Co., location is flagged on the ground, ENG-40-041-58-36, TENNESSEE. U. S. Eng. P. O. Box 97, Memphis 1, Tenn. Bids Nov. 19. CD 10/10.

BUILDINGS—LB & CA

▲† **Dist. P. Wks. Office**, Bldg. No. 13, Naval Base, Charleston, S. C., cancelled bids to have been opened Jan. 22, CAPEHART FAMILY HOUSING, Marine Corps Recruit Depot, NBy (CH) 13910, PARRIS ISLAND, S. C. CD 12/6.

▲ **Bd. Trustees School Dist. No. 7**, Spartanburg, S. C., rejected bids Dec. 17 Spartanburg HIGH SCHOOL, SPARTANBURG, S. C., LB **$2,808,000.** CD 11/8.

▲ **A. R. Briggs Constr. Co.**, 526 Arch St., Macon, Ga., CA **$1,749,600,** CLASSROOM BLDG. for Georgia Tech, ATLANTA, GA. University System Bldg., 244 Washington St. S. W., Atlanta, Ga. Bids Dec. 17, awarded Dec. 19. CD 12/27, under LB.

Pattillo Constr. Co., Box 570, Decatur, Ga., LB **$374,848,** Blair Village Elementary SCHOOL, ATLANTA, GA. City Bd. Educ., City Hall, Atlanta, Ga. Hugh Marshall, 1107 W. Rugby Ave., College Park, Ga., archts. CD 4/30.

▲† **Directorate of Procurement & Prod.**, Bldg. 1678 Robins Air Force Base, Macon, Ga., rejected bids Oct. 29, 273 HOUSING UNITS, Robins Air Force Base, No. 09-603-58-12, MACON, GA. LB **$4,434,000.** Will re-advertise. CD 11/25, under LB.

▲ **Wm. A. Berbusse, Jr., Inc.**, 322 Royal Palm Way, Palm Beach, Fla., LB **$3,346,900,** COURT HOUSE and JAIL, south of present courthouse on Old County Courthouse, ORLANDO, FLA. Bd. Comr. Orange Co., City Hall, Orlando, Fla. Smith, Hardaker & Huddleston, First Federal Savings Bldg., Jacksonville, Fla., and Russell W. Raine, 210 Park Ave. N. Winter Park, Fla., engrs. Bids Dec. 20, CD 11/22.

Lancaster Bros. Contractors, Box 2737, Greenville, Miss., LB **$396,704,** general contract SCHOOL, AVON, MISS. Bd. Trustees Western Line Consolidated School Dist. of Washington Co., Avon, Miss. Harold Kaplan, 223 Weinberg Bldg., Greenville, Miss., archt. Bids Dec. 10.

Fred Saliba Constr. Co., 4828 Normandy St., Memphis, Tenn., CA **$354,000,** Phillips Center and Byhalia SCHOOLS, HOLLY SPRINGS, MISS. Marshall Co. Bd. Educ., Holly Springs, Miss. B. A. England, Jr., 1402 Buchanan St., Corinth, Miss., archt. Bids Dec. 4. 1/9/58.

L. W. Eaton Co., Inc., Contractors, P. O. Box 387, Baton Rouge, La., CA **$319,700,** PLANT addn., BATON ROUGE, LA. Borden Co., 4743 Florida Ave., Baton Rouge, La. Bids Sept. 12. CD 10/2; under LB.

▲ **Gervais Favrot Co. Inc.**, 330 Baltimore Bldg., New Orleans, La., CA **$3,090,684,** 16 story Roosevelt MOTOR HOTEL and PARKING BLDG., Loyola and Gravier Sts., NEW ORLEANS, LA. Roosevelt Hotel, 123 Baronne St., New Orleans, La. Bids Dec. 17. CD 12/24, under LB.

Tellepsen Constr. Co., Box 2536 Houston, Tex., CA Est. **$300,000,** 1 story, 30,000 sq. ft. masonry PRODUCTS CONTROL LABORATORY, NORCO, LA. Shell Oil Co., 380 Maiden Lane, New York 17, N. Y., and Shell Bldg., New Orleans, La. Bids Nov. 19. CD 11/8.

Henry C. Beck Constr. Co., 1709 Jackson, Dallas, Tex., CA Approx. **$400,000,** DOCTORS BLDG., SHREVEPORT, LA. Doctors Bldg. Inc., N. O. Thomas and Henry C. Beck, Jr., 1709 Jackson, Dallas, Tex. CD 12/31.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

January 15 Michigan January 21 Ohio

O., Parma Heights—SWIMMING POOL, etc.—BA 1/16—Village Parma Heights, 6607 Pearl Rd., Cleveland, Zone 30, swimming pool and service bldg. $200,000. John F. Lipaj Assocs., The Arcade, Cleveland, 14, archts. Plans deposit $30. CD 1/9/56.

† **Illinois**—BA 1/17—U. S. Eng., 420 Locust St., St. Louis 2, Mo., access roads and recreational facilities Devils Kitchen Dam, Williamson Co., CIVENG-23-065-58-25. Extended date. CD 12/11, under unclassified.

Ind., English—BA 1/20—Town, E. C. Roberts, clk.-treas., Town Hall, WW imprvs., Div. A, distribution sys., Div. B, steel storage reservoir and foundation, Div. C, submersible well pump and electrical work. Plans deposit $15. Clyde E. Williams & Assocs., Inc., 312 West Colfax Ave., South Bend, Zone 1, and 720 East 38 St., Indianapolis, engr. CD 11/19/52.

Ind., Marion—OFFICE, etc.—BA 1/20—Bd. Aviation Comrs. of Marion, Marion Municipal Airport, Marion, Item No. 1, 20x36 sq. ft. masonry manager's office bldg., air conditioned; Item No. 2, 30x90 sq. ft. stone based automobile parking area near manager's office bldg. Plans deposit $25. Clyde E. Williams & Assocs., Inc., 720 East 38 St., Indianapolis, engr. CD 10/13/54.

▲ **Ill., Chicago**—BA 1/24—City, structural steel for railroad grade separation W. Wayman St. to W. Kinzie, NW Route Superhighway, $1,200,000. CD 9/25.

O., Dayton—BA 1/30—Comrs. Montgomery Co., Court House, drilling, casing, and developing 18 in. well at Dryden Rd. well field, Greater Moraine Water System. Plans deposit $5. Earl Riber, 127 N. Perry St., co. san. engr. CD 11/29.

▲ **Ill., Chicago**—BA 2/11—City, bridge structure fo NW Route Superhighway C.&N.W. R.R. grade separation, W. Kinzie to W. Hubbard, $1,800,000. CD 9/25.

BUILDINGS—BA

Mich., Ludington—SCHOOL—BA 1/14—Bd. Educ., Ludington Area School Dist. No. 1, Ralph Johnson, secy., elementary school. Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, archt.

▲ **O., Parma**—HOSPITAL—BA 1/14—Catholic Diocese of Cleveland, 1027 Superior Ave., Cleveland, Zone 14, (selective list of bidders) Cancer Hospital, $1,200,000. George S. Rider Co., Terminal Tower, Cleveland, Zone 13, engr. CD 7/23.

▲ **Ind., Gary**—DEPARTMENT STORE, etc. BA 1/15—L. I. Combs & Sons, 2645 Wabash St., 1 and 2 story brick department store, warehouse, sewers and bit paving, 35th and Grant Sts. $2,300,000, Frederick W. Collins, 400 W. 5 Ave., archt. CD 1/30/53.

Mich., Lake City—SCHOOL—BA 1/16—Bd. Educ., Lake City, high school. Extended date. Paul A. Hazelton, Grandview Blvd., Traverse City, archt. CD 12/12.

▲ **Mich., Northville**—SCHOOL—BA 1/20—BD Educ., P. School Dist, 501 West Main St., high school. $1,000,000. Plans deposit $40. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, archt. CD 12/27/56.

Mich., Bay City—SERVICE CENTER—BA 1/21—Consumers Power Co., Dan E. Karn, pres., Jackson, service center. Alden B. Dow, 315 Post, Midland, archt.

▲ **Mich., Kalamazoo**—LIBRARY-MUSUEM—BA 1/21—City, Bd. Educ., C. C. Crawford, secy., 306 E. Lovell St., library-museum bldg. $1,500,000. Louis C. Kingscott & Assoc., 511 Monroe St., archts. CD 11/6.

Ind., Berne—SCHOOL—BA 1/22—Berne-French Twp. Schools & Bldg. Corp., Berne, 93x100 ft., 79x185 ft. rein.-con. structural steel, bar joists and masonry school addn., $350,000. Bradley & Bradley, 1115 S. Clinton St., Fort Wayne, archts.

Ill., Chicago—SCHOOL—BA 1/27—Chicago Bd. Educ., 228 N. LaSalle St., 2 story brick, Flavel Moseley Social Adjustment School, 5700 S. Lafayette Ave. $500,000. Consoer & Morgan, 351 E. Ohio St., archts. CD 8/3/56.

Wis., Watertown—FACTORY—BA 1/28—Brandt Automatic Cashier Co., Watertown, 1 story, 140x488 ft. concrete, steel, brick factory, Plans deposit $40, Law, Law, Potter & Nystrom, 121 S. Pinckney St., Madison, engrs-archts.

▲ **Ill., Highland Park**—HOSPITAL—BA 1/29—Highland Park Hospital, 718 Glenview Ave., 2 and 3 story bsmnt. hospital addn., bit paving, $2,400,000, Childs & Smith, 20 N. Wacker Dr., Chicago, archts. CD 6/18/56.

Wis., La Crosse—STUDENT UNION—BA 1/30—Wisconsin State Colleges Bldg. Corp., Madison, student union bldg., $600,000. Plans deposit $25, Schubert, Sorensen & Assocs., Inc., 308 Hoeschler Bldg., La Crosse, archt. CD 11/13/56.

▲ **O., Shaker Heights**—OFFICE—BA 2/1—Allstate Insurance Co., 7447 Skokie Blvd., Skokie, Ill. (selected list of bidders) 1 story, 60,000 sq. ft. brick, stone Regional Office Bldg., with off street parking. $1,000,000. Garfield Harris, Schafer, Flynn & Williams, 1740 E 12th St., Cleveland Zone 14, archts. CD 11/8.

† **O., Bryan**—TRAINING CENTER—BA 2/5—U. S. Eng. 237 4th Ave., Huntington 18, W. Va., constr. Army Training Center, ENG. 46-022-58-3. CD 7/18.

▲ **O., Steubenville**—HOSPITAL—BA 2/18—Sisters of St. Francis, Sylvania, 6 story St. John's Hospital, $2,000,000. Conrad & Simpson, Hanna Bldg., Cleveland, Zone 15, archts. CD 12/6/56.

HEAVY CONSTRUCTION—LB & CA

Charles R. Beltz & Co., 11029 Whitler St., Detroit, Mich., CA **$82,500,** 85 X 185 ft. ice skating rink at Rubber Bowl, AKRON, O. City, Leo Walter, serv. dir., City Hall, Akron, O. Bids Dec. 13, awarded Dec. 11. CD 12/5.

▲ **Cunningham Bros., Inc.**, 3591/2 E. Grand Ave., Beloit, Wis., CA $4,958,942. Co tr. No. 8, Millcreek Sewer-

age System, CINCINNATI, O. City, City Hall, Cincinnati, O. Awarded Dec. 18. CD 11/20.

City of Euclid, City Hall, 585 E. 222 St., Cleveland 23, O., rejected bids Nov. 18, Contr. 7, sewerage treatment plant, addn., repair to existing outfall sewer and stone wing bldg., EUCLID, O. CD 11/27, under LB.

Vaughn Building Co., 1st National Bank Bldg., Hamilton, O., CA **$636,000,** est. $575,000 MUNICIPAL LIGHT PLANT BLDG. (to house a new generator and other equip.) HAMILTON, O. City, City Hall, Hamilton, O. Emery, Marker & Campbell, 1408 Toledo Trust Bldg., Hamilton, O., archts. CD 12/20, under LB.

INDIANA—**State Hy. Comn.,** State House Annex, Indianapolis, Bids opened 12/17,

Breslin Constr. Co., 1433 S. Preston St., Louisville, Ky., LB **$232,088,** est. $286,850, bit. resurf. and bit. base wid'n. and resurf. 8.595 mi. U.S. 31 from Silver Creek north of Speed to Henryville, Proj. F-21(24) RS-4276, and bit. resurf. and bit. base wid'n. and resurf. 1.456 mi. U.S. 31 from junction of U.S. 31W and U.S. 31E south of Sellersburg to Silver Creek north of Speed, Proj. ST-21 Sec. F, RS-4276, Clark Co. **(Correction**—low bidder). CD 12/27, under LB.

▲ **McKenzie, Hague, Gilles Co.,** Flour Exchange Bldg., Minneapolis, Minn., CA **$1,500,000,** 1,500,000 bu. GRAIN ELEVATOR incl. truck dump, car dumpy, 24 concrete tanks, etc., ALTON, ILL. F. H. Peavey & Co., Grain Exchange Bldg., Minneapolis, Minn.

Joseph M. Brickman Co., 7830 W. Lawrence Ave., Chicago, Ill., LB **$426,143,** rein.-con. 2 level PUBLIC PARKING GARAGE 61, 1214 S. Kedzie Ave., CHICAGO, ILL. City, Chicago, Ill. CD 5/4/56.

▲ **C. A. Tharnstrom & Co.,** 7401 St. Louis Ave., Skokie, Ill., CA **$2,000,000,** HOTEL, RESTAURANT and STORE BLDG., AND PARKING FACILITIES, 600-22 N. Lake Shore Dr., CHICAGO, ILL. Levy & Spare, 33 N. LaSalle St., Chicago, Ill. CD 6/20.

Jos. T. Carp, Inc., 5640 N. Northwest Hy., Chicago, Ill., CA **$400,000,** 1 story, brick, 38,700 sq. ft. FACTORY, WAREHOUSE AND OFFICE BLDG., Hy. 83 and Pratt Blvd., Centex Industrial Park, ELK GROVE, ILL. Crown Rheostat & Supply Co., 3465 N. Kimball Ave., Chicago, Ill. Ralph E. Stoetzel, 100 W. Monroe St., Chicago, Ill., archt.

Speedway Contg. Co., 6001 N. 91 St., Milwaukee, Wis., CA **$90,696** (10 bidders), sewers in S. 23 St., MILWAUKEE, WIS., City, City Hall, Bids Dec. 18, awarded Dec. 20. CD 12/13.

Chris Nelson & Son, Inc., 415 East Hudson, Royal Oak, Mich., CA **$301,500** (7 bidders), sanitary sewers, ANN ARBOR, MICH. City, Fred J. Looker, clk., Ann Arbor, Mich. Bids Dec. 12. CD 11/21.

Dawson & Sons, Tawas City, Mich., LB **$572,000,** general contract HIGH SCHOOL, SCOTTSVILLE, MICH. City, Bd. Educ., Scottsville, Mich. Bids Dec. 19. CD 12/5.

Pulte-Strang, Inc., 400 West Marshall Bldg., Ferndale, Mich., CA **$661,034,** Daniel L. Quirk Jr. DRAMATIC ARTS BLDG. Eastern Michigan College, YPSILANTI, MICH. State, A. N. Langlus, dir. State Bldg., Lewis Cass Bldg., Lansing, Mich. Bids Dec. 17. CD 11/18.

BUILDINGS—LB & CA

▲ **Abbot Constr. Co.,** 5789 N. Lincoln Ave., Chicago, Ill., LB **$1,194,160,** 2 story, brick Henry Suder ELEMENTARY SCHOOL, Washington and Leavitt Sts., CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago, Ill. CD 12/9.

Oscar Bohlin & Sons, Inc., 3335 Main St., Skokie, Ill., CA **$200,000,** 2 story, face brick, stone, FACTORY, SW cor. Hubbard and Bishop, CHICAGO, ILL. Hubbard St. Bldg. Corp., 1431 W. Hubbard St., Chicago, Ill. CD 10/30.

Poirot Constr. Co., 2001 W. Pershing Rd., Chicago, Ill., CA **$155,000,** 1 story, brick, 17,264 sq. ft., MEAT PACKING PLANT AND OFFICE BLDG., 1000 W. Pershing Rd., CHICAGO, ILL. Superior Packing Co., 4119 S. Union Ave., Chicago, Ill. CD 11/13.

S. L. Pavela, 402 N. 16 St., La Crosse, Wis., CA Est. **$150,000,** general contract 1 story, 80 x 200 ft. concrete, concrete blocks and wood trusses WAREHOUSE, LA CROSSE, WIS. Heileman Brewing Co., 1027 S. 3 St., La Crosse, Wis. Frank J. Fuchs, 115 S. 4 St., La Crosse, Wis., archt.

Smith Andrews Co., 21110 Greenfield, Oak Park, Mich., CA **$575,124,** AUDITORIUM addn. to High School; incl. mechanical and electrical work, TRENTON, MICH. Bd. Educ., Trenton P. Schools, Trenton, Mich. Bennett & Straight, 15624 Mich. Ave., Dearborn, Mich., archts. Bids Dec. 23. CD 12/16.

Salvaggio & Son Constr. Co., 13315 E. Outer Dr., Detroit, Mich., CA **$378,038,** East Elementary SCHOOL, WARREN, MICH. Bd. Educ., Warren School Dist., 5460 Arden, Warren, Mich. Bids Dec. 17. CD 12/5.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 16, 17 Kansas — January 17 Missouri — January 21 Texas

STREETS AND ROADS

January 16, 17 Kansas — January 17 Missouri — January 21, 22 Texas

Kan., Mission—BA 1/14—Bd. Comrs. Johnson Co., c/o M. J. Ziegler, chn., 6915 Johnson Dr., Contract No. 1, Sec. I, main gravity sewers; Sec. II, 14 in. c.i. pipe force main; Sec. III, constr. pump station and inlet manhole for Dykes Branch Joint Sewer Dist. A, $500,000-$600,000. Plans deposit $15. Black & Veatch, 1500 Meadow Lake Parkway, Kansas City 14, Mo., engrs.

Minn., Minneapolis—BA 1/16—Regents of the University of Minnesota, C. A. Smith, purch. agt., 404 Administration Bldg., Zone 14, storm and sanitary sewers, deep tunnels, const. for men's residence halls, Walnut St. between Delaware and Fulton Sts. S. E. on campus. $75,000.

Minn., Long Prairie—BA 1/21—Todd Co., Nick Truog, aud., grading 9.8 mi. between T. H. 71 in Clarissa and CSAH 24, SP 77-619-01 (CSAH 11), Minn. Proj. S 6482 (5), $100,000. Plans deposit $2.15. L. Pantzke, co. hy. engr. CD 8/27.

† **Tex., Kingsville**—BA 1/21—Officer in Charge Constr., Admin. Bldg. No. 1, Naval Air Station, Corpus Christi, repairs to Water Well No. 4 at Naval Aux. Air Station, NBy 16458, Spec. 16458/57 CD 9/19.

Minn., St. Paul—ELECTRIC SUPPLY—BA About 1/28—U.S. Eng., 1217 Post Office & Custom House, electric supply and appurtenances at Air Force Stations Grand Rapids and Willmar, consisting 1 story, 36 x 58 ft. power bldg.; manually operated traveling crane and hoists; install four govt.-furnished diesel engine generator sets; 480-volt dist. sys., etc., Inv. No. 21-018-58-7. Plans deposit $10. CD 7/25, under LB.

† **North Dakota**—TRANSMISSION LINE—BA 1/30—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., furnishing del. f. o. b. cars delivery point for domestic bidders; f. o. b. cars at West Fargo, for foreign bidders, Schedule Item No. 1, one 25,000 KVA, 13,800 volt, 3 phase, 60 cycle, hydrogen-cooled outdoor-type synchronous condenser, with control equipment, for Fargo substation, Transmission Div., North Dakota, Missouri River Basin Project, Inv. DS-5001. **(Correction**—bid date). CD 9/13/23.

† **Wyoming**—BA 2/6—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., furnishing, del fob cars shipping point or fob cars at Casper, Schedule No. 1, Item 1, two 144 in. butterfly valves, with operating units, handling equipment, and bedplates, all of contractor design; Schedule No. 2, Item 2, two butterfly valves, with operating units, handling equipment, and bedplates, all of contractor design, Fremont Canyon Powerplant, Oregon Trail Division, Glendo Unit, Wyoming Missouri River Basin Proj., DS-5006, CD 9/10/56.

BUILDINGS—BA

Tex., Abilene—DISTRICT—BA 1/16—State Hy. Dpt., 100 College Dr., Austin, district bldg. and utilities (outside) $100,000. Plans deposit $35. Boone & Pope, 262 Leggett St., engrs.-archts. CD 7/26.

Minn., Glencoe—COURT HOUSE, etc.—BA 1/22—McLeod Co., Lida C. Luthens, aud., Glencoe, 3 story court house addn., alteratione, etc. $400,000. Plans deposit $35. Hammel & Green, 1932½ University Ave., St. Paul, archts. CD 10/2.

Wyo., Laramie—STUDENT UNION—BA 1/25—University of Wyoming, Laramie, student union addn. $625,000, CD 5/10.

† **Colo., Colorado Springs**—HOUSING—BA 1/30—Dpt. Air Force, Constr. Agency, P. O. Box 1670, off-site facilities, Capehart Housing on the Air Force Academy Site located approx. eight (8) mi. north of here, IFB 05-613-58-28. CD 7/23.

▲ **Mo., Cape Girardeau**—SCIENCE, etc.—BA 1/30—Southeast Missouri State College, Bd. Regents, Mark F. Scully, pres., Practical Arts Bldg., a Science Group (2 bldgs.); Women's Physical Educational Bldg. $2,500,000. Hellmuth, Obata & Kassabaum, Inc., 315 N. 10 St., St. Louis, Zone 1, archt. CD 2/8/55.

▲ **Mont., Helena**—BANK—BA 2/4—Union Bank & Trust Co., Helena, (selected list of bidders) 3-story, bsmnt., 70x145 ft., rein.-con. bank $1,000,000. Orr Pickering & Assocs., Fratt Bldg., Billings archts. CD 7/31.

BUILDINGS—SLC

Colo., Loveland—COUNTRY CLUB—Country Club Assoc., of America, c/o Darrel Wilson, Fort Collins, soon lets contract Country Club, native stone, 2 levels, swimming pool, etc. $500,000. B. W. Lorance, 2801 E. Colfax, Denver, archt.-engr. CD 12/11.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Anderson & Sons, 100 North Seventh St., Minneapolis, Minn. CA **$659,606,** base and c conc. paving 10.2 mi. between LeCenter and Montgomery, SP 4002-25 (T. H. 13-13) Minn. Proj. F 013-1(3), LeSueur Co. Bids Nov. 29. CD 12/5, under LB.

Sibley Co., W. C. Oldenburg, aud., Gaylord, Minn., rejected bids Dec. 20, County Ditch No. 11, est. **$80,156,** and County Ditch No. 22, est. **$45,405,** GAYLORD, MINN. CD 12/5.

Heckman & Reynolds, Inc., Floyd, Iowa. CA **$76,014,** 79,939 tons crushed stone for stockpiling, CHARLES CITY, IOWA. Bd. Supervs. Floyd Co., Court House, Charles City, Iowa. M. E. Hickelhier, Charles City, Iowa, co. engr.

Concrete Materials & Constr. Co., 4096 First Ave. N.E., Cedar Rapids, Iowa, CA **$89,272,** crushed stone surf. 171.02 mi. secondary county roads, IOWA CITY, IOWA. Bd. Suprvs Johnson Co., Court House, Iowa City, Iowa. R. H. Justen, Court House, Iowa City, Iowa, Co. engr.

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Roth & Assocs., Storm Lake, Iowa. CA $134,000, W.W. sys. extens., imprvs., PELLA, IOWA, City, W. L. McNamar, clk., City Hall, Pella, Iowa. Bids Dec. 3, Henry E. Cook, 308 McNett Bldg., Ottumwa, Iowa, engr.

† Massman Constr. Co., 3917 Broadway, Kansas City, Mo., LB $253,300, est. $269,790, revetments 3.7 mi. upstream from Jefferson City, incl. 510,000 cu. yd. earthwork and 119,000 tons stone near Jefferson City, Missouri River, ENG-13-028-58-42, MISSOURI. U. S. Eng., 1800 Federal Office Bldg., 911 Walnut St., Kansas City 6, Mo. Bids Dec. 17. CD 6/15/44.

▲† Sodemann Heat & Power Co., 1737 Macklind Ave., St. Louis, 10, Mo., CA $1,752,944. (7 bidders), base bid, air-conditioning at U. S. Court House and Custom House, 1114 Market St., ST LOUIS, MO. General Service Admin., P. Bldgs. Services, 2306 E. Bannister Rd., Kansas City 14, Mo. Bids Dec. 18. CD 12/27, under LB.

▲ S. Patti Constr. Co., 1340 Admiral, Kansas City, Mo., LB $3,140,000. Div. A. Southwest Sewage Treatment plant—plant capacity 12 m.g. daily, separate sludge digesters, sewage screens, grit chamber, primary settling tanks, digester control bldg., SPRINGFIELD, MO. City, c/o W. B. Avery, city mgr., City Hall, Springfield, Mo. Bids Dec. 19. CD 11/15.

† Mississippi Valley Eng. & Constr. Co., 787 S. Willett St., Memphis, Tenn. LB $50,235, bank stabilization Warings Bend, repairs to revetment, River Mile 147.0 to River Mile 146.4, Arkansas River, watershed, Arkansas River, 3½ mi. southeast of Wrightsville, CIV-ENG-03-050-58-44, ARKANSAS. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids Dec. 19. CD 12/11.

Volz Constr. Co., Ripley, Tenn. LB $78,924 (b) distr. lines, LAKE VILLAGE, ARK. City, City Hall, Jack Rhodes, mayor, Lake Village, Ark. Bids Dec. 16. CD 12/9;
Collie, Inc., 610 W. 3 St., Little Rock, Ark. LB $98,700 (c) treatment plant (Lake Village, Ark.)

Chicago Bridge & Iron Co., 1305 W. 105th St., Chicago, Ill. LB $54,300 (A) steel tank on tower, LAKE VILLAGE, ARK. City, Jack Rhodes, mayor, City Hall, Lake Village, Ark. Bids Dec. 16. CD 10/10.

SOUTH DAKOTA—State Hy. Dpt., Pierre, Bids opened 12/17,

Northwestern Eng. Co., 1311 St. Joe, Rapid City, S. D. LB $566,255. (7 bidders) c. conc. surf., 119 ft. 33¾ continuous concrete bridge State Hy. 40 U. S. 494 (1) Pennington Co. CD 11/22.

KANSAS—State Hy. Comn., State Office Bldg., Topeka, Bids opened 12/20,

Buchanan Brothers, 1015 S. Bethany, Kansas City, Kan.. LB $243,711, grading 5.455 mi. beginning at jct. with K-5 at Wolcott; thence west and south on County Hy. to jct. with Parallel Road, SP No. 105 S 1264 (1), Wyandotte Co. CD 12/5.

Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. LB $298,512, est. $327,103, Contract 1, Southeast Rosedale Storm Sewer and appurtenances, State Line to Rainbow Blvd.; Olathe Blvd. to County line, KANSAS CITY, KAN. City, c/o Geo. T. Groneman, clk., Kansas City, Kan. Bids Dec. 17. CD 10/15.

▲ Dondlinger & Sons Constr. Co. Inc., P. O. Box 2033, Wichita, Kan., CA $2,829,273, est. $3,078,785. Contract 1, Secondary Sewage Treatment Plant, WICHITA, KAN. City, Robert H. Hess, dir. Water Supply & Sewage Treatment, City Hall, Wichita, Kan. Bids Dec. 16. CD 12/23, under LB;
Utility Contractors, Inc., 610 N. Main St., Wichita, Kan., CA $839,453, est. $944,521. Contract 2, Settled Sewage Transmission Main (Wichita, Kan.).

City of Edmond, City Hall, Edmond, Okla., rejected bids Dec. 16, municipal swimming pool and bath house, EDMOND, OKLA. New bids Jan. 6. Phillips & Strong, 2832 Wilshire, Oklahoma City, Okla., engr. CD 12/10.

M. A. Swatek & Co., 1137 N. W. 2nd St., Oklahoma City, Okla. LB $86,235, diversion ditch for Lake Hefner Section 1, OKLAHOMA CITY, OKLA. City City Hall, Oklahoma City, Okla. C. E. Bretz, 1916 North Broadway, Oklahoma City, Okla., engr. Bids Dec. 4 rejected. CD 12/19, under LB.

Mid-Plains Rural Telephone Co-operative, Tulia, Tex., Owner Builds. $75,000, rural pole lines Tulia, in Swisher Co., TEXAS. CD 3/12/52.

Lyntegar Elec. Co-operative, Tahoka, Tex. Owner Builds. $90,000, rural lines, Tahoka, Lynn Co. TEXAS.

Cherokee County Electric Co-operative Assn., Rusk, Tex., Owner Builds. $100,000. some repairs and imprvs. to rural distr. sys. lines, Cherokee Co., TEXAS. CD 9/4.

Kimble Electric Co-operative, Junction, Tex., Purchase and Hire. $141,000. two small sub-stations, Junction, Kimble Co., TEXAS. CD 8/30.

Texas Farmers Telephone Co., Temple, Tex., Owner Bulids. $75,000. rural pole telephone lines, Temple, Bell Co., TEXAS. CD 11/11.

South Plains Electric Co-operative, Lubbock, Tex., Owner Builds. $95,500. some rural pole distr. lines, Crosby and Hockley Counties, TEXAS. CD 12/3/56.

City, City Hall, Beaumont, Tex., Purchase and Hire. $65,000. water sys. imprvs. line extensions, BEAUMONT, TEX. OD 9/6/56.

City, City Hall, Beaumont, Tex., Purchase and Hire. $100,000, sanitary storm sewers, BEAUMONT, TEX. OD 6/14.

City, City Hall, Bryan, Tex., Owner Builds. $75,000, park imprvs. BRYAN, TEX. Chas. Godwin, 1903-A South College, Bryan, Tex. engr. Fred C. Sandlin, Bryan, Tex. city engr. CD 9/17.

The Goldston Constr. Co., Inc., 918 E. Port St. and Guy H. James Constr. Co., Navigation Blvd., Corpus Christi, Tex. CA $508,292 bulk materials dock CORPUS CHRISTI, TEX. Nueces Co. Navigation Dist. No. 1, Guggenheim-Cohn Bldg., Corpus Christi, Tex. Bids Dec. 17. CD 12/23, under LB.

L. H. Lacy Co., 5630 Yale Blvd., Dallas, Tex. CA $345,273 road work, Inwood Rd. NW Hy. to Royal Lane, DALLAS, TEX. Dallas Co., c/o Courthouse, Dallas, Tex. Koch & Fowler, 3900 Lemmon St., Dallas, Tex., engrs. Bids Dec. 16. CD 11/12.

City, City Hall, El Campo, Tex. Owner Builds. $100,000, storm sewers, EL CAMPO, TEX. Caudill, Rowlett Scott & Assocs., 425 Main St., Bryan, Tex. engrs.

City, City Hall, El Campo, Tex. Owner Builds. $45,000, water lines, EL CAMPO, TEX. Caudill, Rowlett Scott & Asscs., 425 Main St., Bryan, Tex., engrs.

City, City Hall, Galveston, Tex. Owner Builds. $85,000, c.i. water line extensions, $95,500 replacement some water mains, GALVESTON, TEX. Freese, Nichols, & Turner, C&I Life Bldg., Houston, Tex., consult. engrs. CD 4/30/52.

City, City Hall, Galveston, Tex. Owner Builds. $100,000, sanitary sewer lines, GALVESTON, TEX. Freese, Nichols & Turner, C&I Life Bldg., Houston, Tex., consult. engrs. CD 10/17/56.

City, City Hall, Granbury, Tex. Owner Builds. $45,000, water lines repairs, replacement, GRANBURY, TEX. CD 11/15.

City, City Hall, Grand Prairie, Tex. Purchase and Hire. $75,000, open drainage, GRAND PRAIRIE, TEX.

City, City Hall, Grand Prairie, Tex. Purchase and Hire. $90,000, general street imprvs. (drainage, reworking, surf.) GRAND PRAIRIE, TEX. CD 10/10.

City, City Hall, Grand Prairie, Tex., Purchase and Hire, $55,000. laying some emergency water lines, GRAND PRAIRIE, TEX. CD 10/10.

Galveston County Dist. 2, c/o Courthouse, Galveston or League City, Tex. Owner Builds. $90,000 sanitary sewer line extensions, LEAGUE CITY, TEX.

Galveston County Dist. No. 2, c/o Courthouse, Galveston, or League City, Tex. Owner Builds. $60,000, water distr. sys. exten. $75,000, water sys. line repairing, replacement, LUFKIN, TEX.

▲ City P. Service Bd., Navarro and Villita Sts., San Antonio, Tex. Owner Builds. $600,000, electric distr. transformers; $200,000; misc. elec. sys. imprvs.; $400,000, natural gas lines SAN ANTONIO, TEX. Grand total $1,200,000. CD 3/8.

Gifford Hill Co., Box 4334, Station A, Dallas, Tex. LB $230,369, est. $110,000 concrete pipe. Contract 20, over 25,000 lin. ft. 16- to 33-in. water lines, appurtenances, WACO, TEX. City, City Hall, Waco, Tex. Bids Dec. 20. CD 12/13.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver.

Colo.—Gardner Constr. Co., P. O. Box 360, Glenwood Springs, Colo., CA $115,070, est. $120,000 Colorado Proj. No. S-0141 (4) 0.613 mi. grading, structures, Whitewater, Mesa Co.;

Colo.—Pioneer Constr. Co., P. O. Box 21, Pueblo, Colo., CA $415,938, est. $484,000 Colo. Proj. No. 1-092-3(6) 6.445 mi. grading, structures and asphaltic surf., Walsenburg, Huerfano Co.;

Colo.—Siegrist Constr. Co., 7000 North York St., Denver, Colc., CA $165,862, est. $176,000 Colorado Proj. No. S-0054 (3) 6.098 mi. grading, stabilization and structures, Platteville, Weld Co. Grand total $696,870. Bids Dec. 27. CD 12/18.

City of Brush, City Hall, Brush, Colo., rejected bids Dec. 20, sewage treatment plant, BRUSH, COLO. Est. $186,438. CD 12/4.

Air Force Academy Constr. Agency, P.O. Box 1670, Colorado Springs, Colo., cancelled bids to have been opened on or about Nov. 26, landscaping Academic Area, Air Force Academy, IFB 05-613-58-16, COLORADO SPRINGS, COLO. CD 9/6.

BUILDINGS—LB & CA

▲ Harmon Constr. Co., 28 S. Indiana St., P.O. Box 1414, Oklahoma City, Okla., CA $2,095,069 constr. DORMITORY AND APARTMENT BLDG., A STUDENT UNION BLDG. and connecting wing at Medical Center, LITTLE ROCK, ARK. University of Arkansas Medical Center Bd. Trustees, Little Rock, Ark. Bids Oct. 24 CD 11/6, under LB.

Selwyn Whitehead Co., Magnolia, Ark. CA $100,000. 10,000 sq. ft. FACTORY, U. S. No. 82, north of city limits, MAGNOLIA, ARK. Capital City Quilting Co., Jack Lacin, pres., S.W. 8 and Market Sts., Des Moines, Iowa.

▲ Clyde H. Smithwick Realty Co., 3815 W. 28th St., Pine Bluff, Ark. Separate Contracts. $8,000,000. HOUSING DEVELOPMENT, incl. streets, sewers and drainage facilities east of PINE BLUFF, ARK. CD 12/18.

▲† Southeastern, Inc., 7500 Sands Springs Rd., Tulsa, Okla. LB $9,350,000. 700 Family HOUSING Units, Altus Air Force Base, Inv. No. 34-612-58-9, ALTUS, OKLA. U. S. Govt., c/o Base Procurement Office, Altus Air Force Base, Bldg. 320, Altus, Okla. Bids Dec. 19. CD 12/4.

▲† H. K. Ferguson Co., 1783 E. 11, Cleveland, O. and Macco Constr. Co., 14409 Paramount, Paramount, Calif., LB $10,300,000, 7th Section HIGH ENERGY FUEL PLANT, incl. process units, steam boiler plant, engineer bldg., laboratory, etc., for Dpt. of Navy, MUSKOGEE, OKLA. Callery Chemical Co., 230 N. Braddock St., Pittsburgh, Pa. CD 12/20/56.

▲ Tulsa Rig & Reel Co., Philtower Bldg., Tulsa, Okla., CA Est. $1,250,000, co-operative medical and rental OFFICE BLDG., 21st and W Lewis, TULSA, OKLA. 21st Street Bldg. Corp., 21st and Lewis St., Tulsa, Okla. Murray-Jones & Murray, 4238 South Peoria, Tulsa, Okla., archts. Awarded Dec. 14, CD 4/12.

▲† R. D. Lowman, General Contractor, Inc., Box 7155, Annex Station, El Paso, Tex. LB $1,374,265. Sched. A & E. est. $350,000-$1,000,000. G. M. RANGE TRAINING FACILITIES, incl. 7 barracks, utilities lines, water storage, disposal plant, etc., Fort Bliss, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Dec. 19. CD 12/2.

▲ Raymond Nasher, c/o Republic National Bank Bldg., Dallas, Tex., Owner Builds. $375,000. 35 DWELLINGS; $361,225, 27 DWELLINGS; $354,775, 25 DWELLINGS in Valley View Rd. and Marsh Lane, FARMERS BRANCH, TEX. Grand total $1,091,000. CD 12/5.

Terminal Realty Co., 1301 Terminal, Fort Worth, Tex. Purchase and Hire. $368,500, 25 DWELLINGS, $391,-175; 27 DWELLINGS, Westward Addn., FORT WORTH, TEX. CD 11/1.

▲ A. E. Sharp & Sons, 124 E. Main St., Grand Prairie Tex., Owner Builds. $357,125, 22 DWELLINGS; $368,-175, 25 DWELLINGS; $373,000, 27 DWELLINGS in Phillips Park Addn. and Sharpstown Heights, GRAND PRAIRE, TEX. Grand total $1,098,300. CD 12/10.

Baxter Constr. Co., 5327 Allen St., Houston, Tex. CA $395,000. ELEMENTARY SCHOOL addns. viz.; James Bowie, Matthew Dogan, Aliot, Houston Gardens and Pleasantville School, HOUSTON, TEX. Houston Ind. School Dist., 1300 Capitol St., Houston, Tex. Bids Dec. 12. CD 11/21.

Benson Co., Builders, 3316 Sul Ross, Houston, Tex., CA $350,000, BOWLING CENTER, HOUSTON, TEX. Neuharus Investment Co., c/o Texas National Bank Bldg., Houston, Tex. CD 12/31.

Boyker & Vest Constr. Co., 5407 Carew, Houston, Tex., Owner Builds. $378,000, 21 DWELLINGS; $360,000, 18 DWELLINGS in Braes View Terrace, HOUSTON, TEX. CD 12/12.

Bunker Hill Lumber & Bldg. Co., c/o Wm. F. Wortham, Sr., archts., 1503 Hadley St., Houston, Tex. CA $500,000, SHOPPING CENTER, Katy and Bunker Hill Rds., HOUSTON, TEX. Harry W. Hennies, c/o Bunker Hill, Houston, Tex.

Pace Setter Homes, Inc., c/o Norman Dobbins c/o 5727 Northridge, Houston, Tex., Purchase and Hire. $356,-200, 20 DWELLINGS; $369,150, 22 DWELLINGS, in SE section of HOUSTON, TEX. CD 11/26.

▲ University of Houston, 3801 Cullen Blvd., Houston, Tex., rejected bids Sept. 10, ENGINEERING BLDG., HOUSTON, TEX. Est. $5,000,000. Will re-advertise. CD 8/15.

Linbeck Constr. Corp., Box 13007 Houston, Tex. CA $740,000 Base Contract COURTHOUSE-JAIL, KOUNTZE, TEX. Hardin Co., c/o Courthouse, Kountze, Tex. Bids Dec. 18. CD 1/2, under LB.

Chapman & Dalton, Inc. Constr. Co., c/o Gus Thomasson Rd., Dallas, Tex., Owner Builds. $347,750, 30 DWELLINGS; $353,100, 34 DWELLINGS in Casa View Subdivision No. 15 in North Mesquite, MESQUITE, TEX. CD 12/13.

Tynes & Burch Constr. Co., 1833 Belmont, Dallas, Tex., Purchase and Hire. $350,000, 30 DWELLINGS in Pasadena Gardens Subdivision No. 2, MESQUITE, TEX. 12/13.

Beck Constr. Co., 2900 Windsor, Odessa, Tex. Owner Builds. $395,000, 28 brick veneer DWELLINGS, off Wayside St., ODESSA, TEX. CD 12/12.

▲ Rob. H. Smith Co., 1915 Kolfahl, Houston 23, Tex. LB $2,754,000. Base Bid, HIGH SCHOOL, PORT ARTHUR, TEX. Port Arthur, Ind. School Dist., Port Arthur, Tex. Bids Dec. 19. CD 11/4.

Busby, the Builder, 1901 Nacogdoches Rd., San Antonio, Tex. Owner Builds. $360,000, 8 all masonry DWELLINGS, Busby Addn., SAN ANTONIO TEX. CD 12/23.

Caltex Properties, Inc., 1122 N. Cherry St., San Antonio, Tex., rejected bids opened Nov. 6, 76 unit MOTEL, SAN ANTONIO, TEX. Est. $350,000. CD 11/1.

Al J. Keller, Builders, 123 Hubbard, San Antonio, Tex., Owner Builds. $363,335, 22 DWELLINGS in Northwood and Hollywood Estates, SAN ANTONIO, TEX. CD 12/23.

† C. H. Leavell & Co., 1900 Wyoming St., El Paso, Tex. CA $422,792. PHOTOGRAPHIC LABORATORY, White Sands Proving Grounds, Inv. No. ENG-29-005-58-27, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Dec. 12. CD 12/2.

† Robert E. McKee, Gen. Contr., Inc., Box 562, El Paso, Tex. LB $610,440, est. $125,000. (AEC) Simulation LABORATORY, White Sands Proving Grounds, Inv. No. ENG-29-005-58-38, LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Dec. 20. CD 11/29.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

January 16 Arizona January 23 Nevada

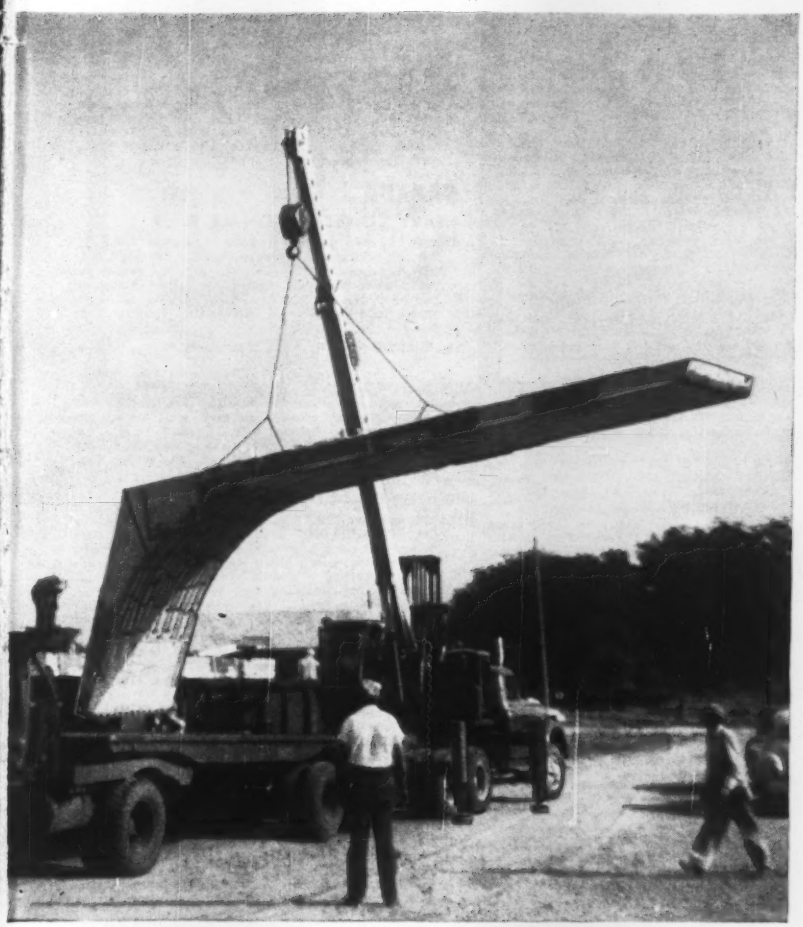
† Washington—BA 1/16—Bureau Reclamation, Dpt. Interior, Ephrata, constr. earthwork and structures for deep drains, Block 86, Columbia Basin Proj., No. 117C-485. CD 9/10/56.

† Washington—BA 1/14—Bureau Reclamation, Dpt. Interior, Ephrata, constr. earthwork and structures for

† Washington—BA 1/23—Bureau Reclamation, Dpt. Interior, Ephrata, constr. earthwork and structures and

(Continued on page 98)

Bucyrus-Erie Announces New, Improved 12-ton 1/2-yard H-5 Hydrocrane with 90 Hydraulic Horsepower to boost your profit range



H-5 Hydrocrane makes good use of big capacity and precision control as it lifts this arch for a commercial structure from a railroad car.

OVER 45% OF HYDROCRANES SOLD ARE REPEAT ORDERS!

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

Now, the capacity of the H-5 Hydrocrane is boosted to 12 tons. And an extra complete hydraulic circuit provides faster speeds and better coordination of all crane movements.

In addition, the H-5 has many outstanding new features that put it farther ahead of ordinary truck cranes. Check these new advances and see why the new H-5 can make more money for you.

Crane Capacity Increased to 12 Tons

One-third more useable horsepower is now provided. More powerful boom hoist, stronger outrigger boxes and high alloy steel in hoist standards help raise crane capacity, open new job opportunities.

Three Separate Hydraulic Circuits Develop Powerful Precision Control

Three independent circuits, each supplied by a separate pump, let you coordinate crane movements faster . . . and still maintain precision control. Pump drive is now enclosed and runs in oil for longer life. No maintenance or adjustment of V-belts required.

Selector Valves Increase and Concentrate Speed and Power

Speed of any movement can be doubled while safely controlling other motions. You can divert flow of oil to where it's needed for added speed. Each circuit contains its own improved relief valve.

New 12-volt System Assures Starts in Severe Weather

Modern 12-volt electrical system is used to start independent power plant for quick starts in all climates.

These new, improved machines retain all the outstanding features of their popular forerunners . . . low-cost truck mounting (new or used), hydraulic telescoping boom, short tail swing, patented outriggers, open road speeds up to 50 mph. Three-piece boom extends to 50 feet, retracts to 26 feet to provide less than 35 feet overall length of truck for travel. See your Bucyrus-Erie Hydrocrane distributor for the whole story on why the new H-5 Hydrocrane boosts your profits. Bucyrus-Erie Company, South Milwaukee, Wisconsin. 231H58C

(Continued from page 96)

structure alterations for laterals and wasteways, Blocks 72 and 74, Columbia Basin Proj., No. 117C-487. CD 9/10/56.

† **Idaho, Mountain Home**—CHAPEL—BA 2/4—U. S. Eng., City-County Airport, Walla Walla, Wash., chapel education wing, Mountain Home Air Force Base, ENG-45-164-58-17. Myron E. Page, Jr., c/o owner, engr. CD 4/23, under LB.

Utah, North Ogden—BA 3/18—Bona Vista Water Dist., Lin C. Baker, secy., 2849 N. 400 E., water imprvs. incl. approx. 55 mi. pipe line two 250,000 gal. reservoirs. $900,000. Nielsen, Reeve & Maxwell, 2567 Ogden Ave., Ogden, engrs. CD 9/9.

BUILDINGS—BA

Wash., Bellevue—SCHOOL—BA 1/16—School Dist. 405, Bellevue, 38,300 sq. ft. frame and masonry Lake Hills Elementary School, with individual room oil-fired furnaces providing perimeter heat. $542,000. Plans deposit $35. Naramore, Bain, Brady & Johnason, 904 7 Ave., Seattle, Zone 4, archts. CD 9/18.

Utah, Farmington—SCHOOL—BA 1/21—Davis County School Bd., Samuel Morgan, supt., Farmington, Junior High School Bldg. Bountiful. $750,000. Plans deposit $20. Lorenzo S. Young, 826 Continental Bank Bldg., Salt Lake City, archt. CD 7/11.

Calif., Ukiah—SCHOOL—BA 1/28—Ukiah Union High School Dist. 43,500 sq. ft. addns. at Ukiah High School. $550,000. Plans deposit $50. Clarence A. Caulkins, Rosenber Bldg., Santa Rosa, archts. CD 3/2/56.

Wash., Ephrata—HOUSING—BA 1/28—Grant Co. Housing Auth., Ephrata, duplex dwelling units at Ephrata, Quincy and Soap Lake, Low-rent Housing Projects Nos. 14-3, 14-5, and 14-6. $350,000. Plans deposit $25. J. I. Mattson, 636 1 Ave. S.W., archt.

▲ **Calif., Los Angeles**—BOYS CAMPS—BA 1/29—Los Angeles Co., Hall of Records, constr. Lake Hughes Junior and Senior Boys Camps. $1,646,961. CD 12/16.

▲ **Ore., Portland**—SHOPPING CENTER—BA 2/27—Lloyd Corp. Ltd., 720 N. E. 12th St., 5 story Department Store, with 2 story, addns., undercover ice skating rink, for Meier & Frank Department Store; 3 story J. C. Penney and Woolworth Bldgs., with 2 story Bldg.; 3 story J. J. Newberry Bldg. and 3 story and 2 story bldgs., Safeway Stores Supermarket, all concrete exterior facings, $25,000,000. John Graham, Dexter Horton Bldg., Seattle, Wash., engr.-archt. CD 5/26/54.

BUILDINGS—SLC

▲ **Ore., Portland**—HOTEL—Sheraton Corp., 212 Wood St., Pittsburgh, Pa., soon iets contract 8 story hotel, $5,000,000. Church, Newberry, Roehr & Schuette, Builders, Exchange Bldg., Portland and Perry, Shaw Hepburn & Dean, Park Bldg., Boston, Mass., archts. CD 12/10.

▲ **Wash., Seattle** — BANK — Natinnal Bank of Commerce, 2 Ave. and Spring St., Zone 4, soon lets contract 5 story, 80,000 sq. ft. steel frame and rein.-con. addn. to bank bldg. $1,000,000. G. W. Stoddard-Huggard & Assocs., 1120 Harvard Ave. N., Zone 2, archts. CD 11/21.

HEAVY CONSTRUCTION—LB & CA

Hoak Constr. Co., 640 64 St., Des Moines, Iowa, LB $173,539, rural electric project known as Escalante Transmission lines, Garfield and Kane Counties, UTAH, Gar Kane Power Assn., Reed Burr, Richfield, Utah. Bids Dec. 19. CD 12/10.

▲ **ARIZONA**—State Hy. Dpt., Phoenix, Bids opened 12/20,

Fisher Contg. Co., P.O. Box 6306, Phoenix, Ariz., LB $2,424,502 (10 bidders) select mat. aggreg. base, bit. plant mix and seal coat 9.4 mi. at Apache-Navajo County line and extends westerly along U.S. Rte. 66 toward Holbrook item No. 57, AFE 6638, I 008-5 (6), Navajo Co. CD 11/27.

Armstrong & Arinstrong, Box 59, Wenatchee, Wash., CA $577,026, treatment plant, with aer-degritter chamber, main operating house structure, wet wall and bar screen structure, clarifier, 2 digesters with operating house structure, and chlorine contact tank structure. WENATCHEE, WASH. City, City Hall, Wenatchee, Wash. Bids Dec. 18. CD 12/27, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Gordon H. Ball, Gordon H. Ball, Inc. & Ball & Simpson, 300 Camille Ave., Danville, Calf. CA $2,576,412. grading 13.6 mi. 2 lane hy. and constr. 9 structures incl. 599 ft. bridge over Cache Creek and 419 ft. bridge over Putah Creek on State Hy. Rte 90, Dunnigan Vacaville Cutoff, Yolo and Solano Counties. Bids Dec. 11, awarded Dec. 24. CD 12/13, under LB.

† **CALIFORNIA**—Bureau P. Rds., Dpt. Interior, Old Mint Bldg., 5 and Mission Sts., San Francisco,

M. J. Coleman, 101 Hy. North, Ukiah, Calif., LB $301,417 (9 bidders) concrete bridge over Blue Creek, Klamath National Forest, Siskiyou Co.

L. C. Smith, Box 610, San Mateo, Calif., LB $171,138 (7 bidders) road imprvs., concrete curbs, gutters, sewers, manholes, etc., various streets in Haskins Estates, BELMONT, CALIF. City, City Hall, Belmont, Calif.

R. C. P. Corp., 2240 Parkway Dr., El Monte, Calif., LB $217,640 (6 bidders) sewage pumping stations, LAGUNA BEACH, CALIF. City Council, City Hall, Laguna Beach, Calif. Bids Dec. 18. CD 12/4.

R. G. Webb, Inc., 913 Wardlow Rd., Long Beach, Calif., CA $107,800. bldgs., dressing rooms, etc., Simon Bolivar Park, LAKEWOOD, CALIF. City, City Hall, Lakewood, Calif. Bids Dec. 6. CD 11/20;

Western-Alta, 325 Anna Maria, Altadena, Calif. CA $183,450 Pat McCormick swimming pool (Lakewood, Calif.).

† **Amco Electric Co.**, 4334½ Eagle Rock Blvd., Los Angeles, Calif., LB $122,579, est. $135,168 (13 bidders) 12 kv power distr. system, Serial No. ENG-04-353-58-16, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Dec. 12. CD 3/5, under Public Buildings.

J. S. Barrett, P. O. Box 2126, Santa Ana, Calif., CA $475,937 Section 1, Rosamond Outfall Trunk Sewers Lancaster, LOS ANGELES, CALIF. Los Angeles County Sanitation Dist. No. 14, 2020 Beverly Blvd., Los Angeles, Calif. Bids Dec. 9.

Webb & White, 512 S. San Vincente Blvd., Los Angeles, Calif., LB $294,768 (12 bidders) removing existing pavement and installing building foundations for State Office Bldg. No. 2, and garage, LOS ANGELES, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Dec. 23. CD 12/10, under Public Buildings.

▲ **Montgomery Ross Fisher Co.**, 10835 Santa Monica Blvd., West Los Angeles, Calif., CA $932,360, Sch. 1, 600 acre ft. uncovered Big Canyon Reservoir, NEWPORT BEACH, CALIF. City Council, City Hall, Newport Beach, Calif. Bids Dec. 9, awarded Dec. 16. CD 12/20, under LB ;

N. P. Van Valkenburgh Co., 1627 N. Chico Ave., El Monte, Calif., CA $329,935, Sch. II, transmission mains, Big Canyon Reservoir (Newport Beach, Calif.)

Webb & White, 512 S. San Vicente Blvd., Los Angeles, Calif. CA $878,427 effluent discharge facilities, 3½ mi. 66 in. rein.-con. pipe, SANTA ANA, CALIF. Orange County Sanitation Dist. No. 1, 1104 W. 8th St., Santa Ana, Calif. Bids Dec. 10, awarded Dec. 11. CD 12/20, under LB, Calif., Los Angeles (Correction—location of project).

BUILDINGS—LB & CA

▲† **U. S. Eng.**, 4735 East Marginal Way, Seattle 4, Wash., cancelled bids to have been opened Dec. 9, constr. and finance 375 units of Capehart HOUSING, FORT LEWIS, WASH. $6,562,500. CD 2/18.

▲ **Mortensen Constr. Co.**, 1021 Westlake Ave. N., Seattle, Wash., CA Est. $1,000,000, 100,000 sq. ft. WAREHOUSE and OFFICE BLDG. with SERVICE BLDGS. and QUARTERS for drivers, SEATTLE, WASH. Smyth Van & Storage Co., 1024 E. Pike St., Seattle, Wash.

▲ **George Irwin**, Route 3, Box 329, Ganby, Ore., CA $1,469,000, HIGH SCHOOL BEAVERTON ORE. Beaverton High School Dist., Town Hall, Beaverton, Ore. Bids Dec. 20, awarded Dec. 26. CD 11/20.

McKernie-Thelen, Inc., 1422 E. Artesia St., Long Beach, Calif. CA $452,500 rein.-con. Orange View JUNIOR HIGH SCHOOL addns., ANAHEIM, CALIF. Anaheim Union High School Dist., Anaheim, Calif. Bids Dec. 5. CD 11/25.

F. P. Lathrop, 800 University Ave., Berkeley, Calif. CA $602,826, 3 story concrete, frame HOSPITAL addn. and remodeling, new admin. wing, cafeteria, kitchen and laundry and completion of 4 floor BERKELEY, CALIF. Alta Bates Community Hospital, c/o Hospital Administrator, 3000 Regent St., Berkeley, Calif. Bids Nov. 14. CD 11/26, under LB.

Smith-Campbell Co., 6510 E. Cherry Ave., Long Beach, Calif., LB $411,268 (15 bidders) 1 story frame stucco Raymond Temple SCHOOL, BUENA PARK, CALIF. Centralia School Dist., 7700 Camelia St., Buena Park, Calif. Bids Dec. 11. CD 11/21.

▲ **Pacific Co. Engineers & Builders**, 801 Cedar St., Berkeley, Calif. CA $1,600,000, 30 store SHOPPING CENTER, Fairmont and San Pablo Aves., EL CERRITO, CALIF. Albert Lovett Co., Tioga Bldg., Berkeley, Calif. Hammarberg & Harman, 2941 Telegraph Ave., Berkeley, Calif., archts.

▲ **Wm. C. Crowell Co.**, 170 E. California St., Pasadena, Calif. CA $1,308,000, est. $1,425,000, major addns. to Fontana HIGH SCHOOL, FONTANA, CALIF. Fontana Unified School Dist., 8425 Mango Ave., Fontana, Calif. Bids Dec. 12. CD 11/21.

▲ **Bob Long Constr. Co.**, Box 1623, Fresno, Calif. CA $2,095,000. Base Bid plus alternates, Sierra JUNIOR HIGH SCHOOL, Cedar and Garland Ave. and Wm. J. Cooper JUNIOR HIGH SCHOOL, Hughes and Ashland Aves., FRESNO, CALIF. Fresno City Unif. School Dist. c/o Supt., 2348 Mariposa St., Fresno, Calif. Bids Dec. 3. CD 12/10, under LB.

▲ **Harris Constr. Co.**, P.O. Box 109, Fresno, Calif. CA $3,000,000, 2 story, rein.-con., 100,000 sq. ft. Rhodes DEPARTMENT STORE in Manchester Shopping Area, FRESNO, CALIF. Western Dpt. Stores, 16 and Broadway, Oakland, Calif. Walter Wagner & Partners, 1830 Van Ness Blvd., Fresno, Calif., archts. CD 8/16.

▲ **Fullerton Union High School Dist.**, 201 East Chapman Ave., Fullerton, Calif., cancelled bids to have been opened Dec. 23, Cypress Site High School, FULLERTON, CALIF. $1,500,000. Project postponed indefinitely. CD 12/16.

Kemp Brothers, 8750 Mettler St., Los Angeles, Calif., LB $617,600. 1 story, brick, Aeolian St. SCHOOL, LOS NIETOS, CALIF. Los Nietos School Dist., 11425 Rivera Rd., Los Nietos, Calif. CD 6/16/53.

▲ **Acme Constr. Co.**, 827 13 St., Modesto, Calif. CA $2,558,700 (1) Atwater Winton HIGH SCHOOL, Wintonway and Fruitland and (2) Merced HIGH SCHOOL, G St. and Morse, MERCED and ATWATER, CALIF. Merced Union High School Dist., 1835 N. St., Merced, Calif. Bids Dec. 18. CD 12/26, under LB.

▲ **Barrett Constr. Co.**, 1800 Evans St., San Francisco, Calif. CA $2,681,800 general constr. 134 bed HOSPITAL addn. at Sequoia Hospital, REDWOOD CITY, CALIF. Sequoia Hospital Dist., c/o Bd. Dir. Whipple Ave. and Alameda de Las Pulges, Redwood City, Calif. Bids Dec. 4. CD 12/11, under LB.

Engstrum & Nourse, 923 Folsom St., San Francisco, Calif., CA $786,300, 3 story, bsmnt., rein.-con., 100,900 sq. ft. COLLEGE LIBRARY addns., San Francisco State College, SAN FRANCISCO, CALIF. State Div. Architecture, P. Wks. Bldg., 1120 N. St., Sacramento, Calif. Bids Dec. 3, awarded Dec. 6. (Correction—contractor). CD 12/11, under CA.

Maino Constr. Co., P. O. Box 709, San Luis Obispo, Calif. LB $226,672 (5 bidders) 20,000 sq. ft. tilt-up steel decks, masonry constr. newspaper PLANT, SAN LUIS OBISPO, CALIF. John Scripps Newspapers, c/o San Luis Obispo Telegraph Tribune, 1240 Morro St., San Luis Obispo, Calif. Kenneth H. Hess, A1A, 620 E. Main St., Ventura, Calif., archt.

▲† **Carl M. Swenson** 1095 Stockton St., San Jose, Calif. CA Est. $3,000,000, 153,000 sq. ft. plant structural steel, masonry POLARIS DEVELOPMENT FACILITY for Dpt. Navy, SUNNYVALE, CALIF. Lockheed Aircraft Corp., Missile Div. P. O. Box 504, Sunnyvale, Calif. J. H. Pomeroy Co., Inc., 727 W. 7th St., Los Angeles, Calif., archts. Bids Dec. 18. CD 12/24, under LB.

Pozzo Constr. Co., 2403 Riverside Dr., Los Angeles, Calif., CA $251,637, 2 story reinforced brick LABORATORY, WEST LOS ANGELES, CALIF. Carmellina Land Corp., 12330 Santa Monica Blvd., West Los Angeles, Calif. Joseph & Joseph, 125 Westwood Blvd., West Los Angeles, Calif., archts.

CANADA

HEAVY CONSTRUCTION—LB & CA

Warden Constr. Co. Ltd., 2697 Lawrence Ave. E., R.R. 2, Scarborough (Toronto Suburb), CA $283,981 constr. approx. 7,500 lin. ft. 24 in. mechanical joint water main in Sheppard Ave., from Yonge to Bathhurst Sts., TORONTO, ONT. Township of North York, 5000 Yonge St., Willowdale, Toronto, Ont. Awarded Dec. 23.

▲ **QUEBEC**—Dpt. P. Wks., Parliament Bldgs., Quebec City,

Que. — **Les Enterprises Franchan**, c/o Rene Champoux, L'Epiphanie, Que. CA., $1,000,000, reconstr. 440 ft., rein.-con. bridge 44 ft. wide over Riviere L'Assomption at entrance to town of L'Assomption;

Que. — **Napoleon Cusabon**, St. Edouard, Que., CA $175,000, 28x231 ft., rein.-con. bridge, Bas de la Riviere, St. Didace. Awarded Dec. 20. Olivier Desjardins, c/o owner, ch. bridge engr.

BUILDINGS—LB & CA

Lavern Asmussen Ltd., 836 Courtland Ave. E., Kitchener, Ont., CA $100,000, 1 story, 105 X 150 ft. steel frame, asbestos tile walls PLANT EXPANSION, poured concrete fdn., Henry Strum Blvd., KITCHENER, ONT. Ardelt Industries of Canada Ltd., Henry Strum Blvd., Kitchener, Ont. Awarded Dec. 26.

▲ **Carl E. Miller Constr. Ltd.**, 779 Little Simcoe St., London, Ont., CA $1,000,000, 3 story, 182 unit rein.-con. slab fdn. blocks; brick exterior walls, APARTMENT 2 story each, wood frame, brick exterior walls ROW HOUSING, Fairmont Subdivision LONDON, ONT. Fairmont Gardens Ltd., c/o general contractor, London, Ont.

Sir Robert McAlpine & Sons, Canada Ltd., 2249 Yonge St., Toronto, Ont., CA $300,000, FACTORY AND OFFICE addns., alterations, 1 story, 80 X 100 ft. factory addn. on ground floor with 40 X 120 ft. office addn., above existing structure, concrete block and poured concrete fdn., structural steel frame, masonry bearing walls, TORONTO, ONT. British Drug Houses (Canada) Ltd., Barclay Ave., Etobicoke, Toronto suburb. John H. Parkin Assocs., 1500 Don Mills Rd., Don Mills P. O., Ont., archts.

Toronto Industrial Leaseholds, 12 Sheppard St., Toronto, Ont., Owner Builds, $200,000, 1 story brick 31,600 sq. ft., PLANT and WAREHOUSE, concrete block fdn. Bartley Dr., TORONTO, ONT.

Boeal Constr. Co., 145 Stewart St., Ottawa, Ont., CA Est. $425,000, 5 story, 40x170 ft., brick RESIDENCE for retired Priests, rein.-con. fdn. and frame, HULL, QUE. La Fraternite Sacerdotale, Laurier St., HULL, Que. Rene Richard, 145 rue Prud 'homme Hull, Que., archt.

F. Landsman & L. Barsky, 282 Ontario St. W., Montreal, Que., Owner Builds, $800,000, four 4 story, bsmnt. 74 X 112 ft., brick walls, APARTMENT BLOCKS, tar and gravel roof, concrete fdn., Scott St., MONTREAL, QUE

▲ **A. Janin & Co., Ltd.**, 1490 Sherbrooke St. W., Montreal, Que., LB $1,345,000 (16 bidders) Forest Biology LABORATORY, Laval University, St. Foye, QUEBEC CITY, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 1/2/48.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

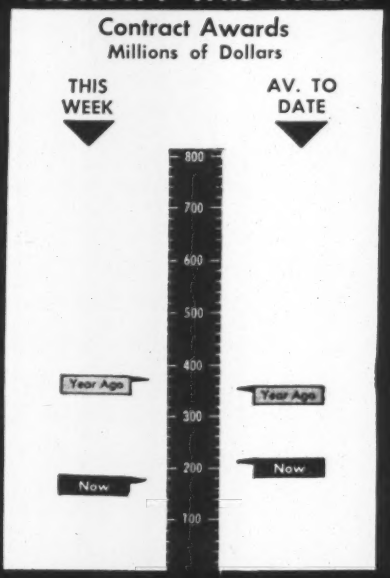
▲† **HONDURAS**—Bureau P. Rds., Dpt. Commerce, Inter-American Hy. Div., 18 and F Sts. N. W., Wash., D. C., U. S. A.

Thompson, Cornwall, Inc., 401 Chrysler Bldg., New York 17, N. Y. U. S. A., CA $2,495,380, Honduras Proj. 56-1 (A) grading, drainage, special sub-base, bridges and other works between El Salvador Border and Nicaragua Border. Bids Dec. 19, awarded Dec. 26. CD 12/23, under LB.

(Proposal Advertisement see pp. 112 and 113)

Construction Scoreboard

ACTIVITY THIS WEEK

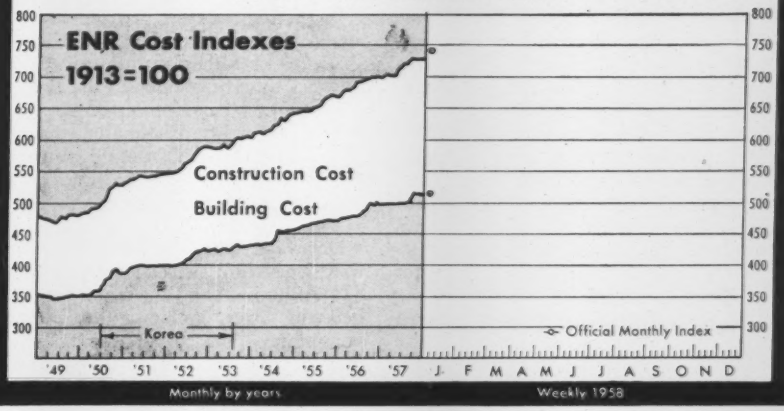


COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Jan. 2 1958	% Change from Dec. 5 1957	% Change from Jan. 3 1957
Construction Cost	743.44*	+0.7	+5.0
Construction Cost	743.35	+0.7	+5.0
Building Cost	516.79*	+0.1	+3.0

*Official Monthly Index for January 1958

To convert above indexes to 1926=100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949=100: Divide Construction Cost by 4.770; Building Cost by 3.518



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 2 wks 1958	Chge '57-'58 %
	millions		
Federal	$14.9	$29.6	−75
State and Municipal	94.1	217.8	−20
Total Public	109.0	247.4	−36
Total Private	62.0	182.8	−41
U. S. Total	$171.0	$430.2	−39
By Type of Work			
Waterworks	$7.0	$9.3	+191
Sewerage	14.3	34.3	+73
Bridges	3.8	6.9	−77
Highways	28.7	87.9	−31
Earthwork, Waterways	2.1	3.4	−94
Buildings:			
Public, Excl. Housg.	38.2	77.1	−13
Public Housing	6.0	15.1	+160
Private Housing	17.5	53.8	−57
Commercial	13.9	20.3	−25
Industrial	14.3	81.9	−46
Unclassified	25.2	40.2	−41
U. S. Total	$171.0	$430.2	−39

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Jan. 2	Cum. 1 wk 1958	Chge '57-'58 %
	millions		
Corporate Securities	$12.5	$12.5	−63
State and Municipal:			
All Except Housing	266.7	266.7	+1254
Housing	0.1	0.1	...
Federal Loans	3.3	3.3	+22
Federal Aid	...	....	...
Total Nonfederal	$282.5	$282.5	+403
Federal Appropriations:			
Projects in U. S.	...	....	...
Outside U. S.	...	....	...
Total New Capital	$282.5	$282.5	+403

MATERIAL PRICES, 20-Cities average

	Jan. 1958	% Change from Dec. 1957	% Change from Jan. 1957
Common	$2.373	+1.0	+7.3
Skilled (average 3 trades)	3.626	+0.4	+4.9
Bricklayers	3.879	+0.2	+4.0
Structural ironworkers	3.639	+0.4	+5.7
Carpenters	3.361	+0.6	+5.2
Equipment operators (average three types)	3.248*	+0.2**	+5.3*

*December **November

WAGE RATES, 20-cities average

Structural steel (average 3 mills), per cwt	$5.275	0	+5.5
Lumber, 2x4 Fir, per M fbm	112.65	−0.3	−3.0
Lumber, 2x4 Pine, per M fbm	99.23	−0.7	−3.5
Cement, bulk, per bbl	3.961	+1.0	+2.9
Sand, per ton	2.492	+0.2	+2.5
Ready-mixed concrete, per cu yd	13.836	+0.8	+2.7
Gypsum sheathing, ½″x2′x8′, per Msf*	62.842	−0.4	+0.6
Fiber board sheathing, ½″ sq. ed., per Msf*	77.788	+9.1	+10.3
Mineral wool insulation, 3′ batts, per Msf*	71.010	−0.1	−0.3
Crushed stone, 1½″, per ton CL	2.838	+1.0	+1.1
Concrete blocks, sand/gravel, 8″x8″x16″, each*	.228	−0.4	+0.9
	Dec. 1957	Nov. 1957	Dec. 1956
Brick, common, per M	$37.613	+0.1	+1.1
Lime, hydrated finishing, per ton, CL	36.644	0	+5.3
Structural clay tile, 3x12x12″, per M, 2,000 up*	183.885	+0.6	+4.8
Vitrified clay sewer pipe, std 12″, per ft	1.303	−0.7	+2.7
Concrete sewer pipe, 12″, per ft	1.231	0	+8.0

*Delivered, truck lots.

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
1957	1913=100	1949=100	1913=100	1949=100	1913=100	1949=100
Jan	707.90	148.40	501.96	142.69	504	146
Feb	710.06	148.85	502.59	142.87	546	158
Mar	708.64	148.56	501.37	142.52	553	160
Apr	709.30	148.69	501.37	142.52	564	163
May	715.70	150.04	503.01	142.99	553	160
Jun	721.36	151.22	504.17	143.32	588	170
Jul	724.15	151.81	506.62	144.01	587	170
Aug	738.63	154.84	516.90	146.93	528	153
Sep	737.78	154.66	516.12	146.71	466	135
Oct	737.14	154.53	516.78	146.90	506	146
Nov	737.43	154.59	516.81	146.91	457	132
Dec	738.08	154.73	516.28	146.76	356	103
1957 Average	**723.85**	**151.74**	**508.67**	**144.59**	**517**	**150**
1958						
Jan	743.44	155.85	516.79	146.90	...	...

Eight States Hurt by Revenue Decline

Cost-cutting ax to strike at construction in three states, four make no move, while one urges more building

During the recent years of a booming and expanding economy, the individual states of the nation lived up to the hilt of their income and borrowing power. It was a period of plenty and legislators were quick to take advantage of a situation that seemed to hold forth promise of lasting forever. Forgetting that estimates are basically a hope, not a fact, state lawmakers pushed for, and obtained, larger appropriations to provide more goods and more services for the voters.

But now the party is over and at least eight states are enduring symptoms of a hangover resulting from too many promises based on income that is not materializing as anticipated.

The states are Delaware, Massachusetts, Florida, Connecticut, New Jersey, Michigan, New York and Vermont. In three of these states—Delaware, Massachusetts and Florida—construction may bear the brunt of the cost-cutting ax. Connecticut, Michigan, New York and Vermont, so far, have not threatened their construction programs. And in New Jersey, the governor has called for a boost in public works as a means of combating the economic downturn.

The situation in Delaware reached critical enough proportions for Gov. J. Caleb Boggs to call a special session of the legislature (ENR Dec. 12, 1957, p. 139). The problem: How to wipe out the $27 million deficit promised by June 30, 1959.

In Massachusetts, a deficit is the customary way of governmental life. But the latest figures jarred even those hardened officials. There is every indication that the state will find itself with a deficit of more than $40 million by June 1, the end of the current fiscal year. That represents a deficit of three to four times the one the state normally operates under.

Florida's position does not appear to be quite as serious, but Gov. LeRoy Collins has announced that the state "will have to take a hitch in its belt."

Connecticut's Gov. Abraham A. Ribicoff late last year announced that the state would have to cut expenditures immediately by 10%.

Gov. Robert B. Meyner of New Jersey reported that if the state's 1958-59 budget is to be balanced, existing state taxes must be increased.

Predicting a deficit of from $16 million to $20 million, Gov. G. Mennen Williams of Michigan ordered all state agencies to cut expenses to the bone.

Vermont's Tax Commissioner, Leonard W. Morrison, estimated that the state will have an "absolute minimum deficit" of $1.5 million by June 30, the end of the current fiscal year.

• **Delaware taxes boosted**—The Delaware legislature succeeded in offsetting $21 million of the threatened deficit by boosting taxes, including the personal income levy, the corporation tax, cigarette tax and the race track parimutual tax.

The remaining $6 million of deficit will be eliminated by a cut in spending, and to that end the legislature is meeting this week. The lawmakers aim to chop spending by $2 million this year and $4 million next year.

Some of the paring already has been done for the legislature passed a law revoking $602,120 in appropriations to the Highway Department for a series of smaller planned projects. But the heavy cutting is yet to come.

When the extent of the deficit was first determined, Governor Boggs ordered an immediate halt to all scheduled sales of school and highway construction bonds. This order was rescinded this week, and the secretary of state said it is "safe to say that highway and school construction programs started and planned will be continued without any major disruption."

• **Bay State cuts posed**—Massachusetts appears to be heading into a storm of controversy over new taxes and cutbacks in spending. Gov. Foster Furcolo may renew his drive for a state sales tax which was defeated in the 1957 legislature.

Whether he gets it or not is in question, but there is little doubt that the lawmakers will be driving hard for more state income and also a reduction in spending on public works projects.

A recent report of the Budget Commission blamed expanding state activities, including construction of all types, for the pending deficit.

This report will have some affect on planned construction and one of the targets may be road construction. There is an inclination among some legislators to rob Peter to pay Paul, for among the bills in the offing are some that would allow the state to take income from gasoline taxes which pays for highway construction and divert it to the general fund.

• **Florida construction threat**—In warning of belt tightening, Governor Collins said that some public construction already authorized would have to be curtailed, because tax collections from the sales tax "have not come up to expectations."

It was on the basis of boosted sales tax revenue that the legislature appropriated $664 million for the biennium. Of this total, $102 million was for buildings. The curtailment of construction will directly reflect the amount of decline in revenue as the Florida constitution prohibits state bond issues. All money that is spent must be derived from receipts.

Early in February, the Budget Commission will review the state's building program to determine which projects will be continued, which ones that should be extended over a longer period, and which should be postponed.

It is considered certain that a $23 million school building program and an $8.3 million expansion of junior colleges will be continued as planned. So will another $10 million in buildings for which contracts have already been signed.

Approximately $10 million in projects is currently stalled pending a later and more exact determination of how much tax income will be available. Still to be evaluated is $60 million in construction, also dependent upon income totals.

The governor allowed one bright spot to appear in his cost-cutting order as far as construction is concerned. He said the state will not attempt to make up all of the threatened deficit by cutting back on construction, because "some of our building needs are more important than some of our operational activities."

• **Connecticut building not hit**—Although Governor Ribicoff of Connecticut ordered a 10% slash in spending, construction currently appears to be unaffected. The move by the governor resulted from sales tax reports that showed income from this source had fallen short of the expected yield of the $19 million for the third quarter. The

drop signaled the state financial authorities that other revenues would be less than earlier estimates.

To meet the eventuality, Governor Ribicoff decided to take action on expenditures while there was still time to avoid what could develop into a deficit operation.

• **New Jersey's headache**—Governor Meyner of New Jersey took stock of the downturn in state income and announced that if the state budget is to be balanced in the 1958-59 period, existing state taxes must be increased or new levies adopted before June. He did not estimate the amount of new revenue that would be requested, but based on the state's past spending patterns, the total could top $30 million.

Later, the governor said that the economic downturn in the state could only be offset by an increased program of public works construction.

• **Michigan construction safe**—Although Michigan was described by Governor Williams as being in a "very serious cash emergency," his economy move was not expected to materially affect highway construction. The highway program is financed by federal funds and the state gasoline tax, which is earmarked for road purposes only.

However, the situation is serious enough to put the state in the position of not having enough money to meet payrolls and other essential bills between now and July 1 when the fiscal year ends. The governor said that expenditures must either be reduced below the legislature's authorized appropriations or "we must raise some additional money this spring."

• **Vermont's deficit**—In Vermont, nothing has yet been said as to how the threatened deficit may be reduced or eliminated. Tax Commissioner Morison pointed out that although state revenues are running ahead of last year, they are not in great enough quantity to meet the budget appropriations authorized by the 1957 legislature.

The state ended the last fiscal year, which ended June 30, 1957, with a $468,550 deficit. Compounding the problem were legislative appropriations of $25 million that amounted to $1.2 million more than estimated revenues for the current fiscal year.

• **New York's revenue lags**—This week, a new calculation showed that New York State's revenues for the current fiscal year ending March 31 are running $20 million below the estimates on which Gov. Averell Harriman's budget was based.

The latest estimate is $5 million greater than one made last November. Governor Harriman, at that time, ordered all state agencies to keep spending at a minimum but did not outline any specific methods to be followed.

But more detailed plans are expected when he submits his budget message to the 1958 legislature on February 1. It has been unofficially indicated that he will support a gasoline tax increase which would finance an expanded highway construction program. Last year he urged such a boost, but it was not granted by the state's lawmakers.

• **Increased expenditures**—Ironically, in a period of declining income, an automatic increase of expenditures in some sectors is signalled. At least two of these increases come in the form of more payments to the unemployed and higher welfare costs.

Oil Company Denied Rapid Tax Write-Off

The Office of Defense Mobilization refused to extend a rapid tax write-off granted earlier to Commerce Oil Refining Corp. for $16.5 million of its $55 million refinery project at Jamestown, R. I. The company said that alternate financing had been arranged in anticipation of the ODM decision, and it will have no affect on construction plans.

The project had been granted a tax write-off in December, 1956, but it stipulated that construction begin within six months. Commerce, unable to meet the time limitation, applied for an extension of the certificate. The ODM refused the extension on grounds that new refining capacity could not be considered essential to defense and that the refinery would interfere with naval operations at nearby Quonset Point Naval Station and Gould Island torpedo testing station.

Three Cement Companies Merge to Form One Unit

Stockholders of three companies, at separate meetings, have approved the merger of Riverside Cement Co., Peerless Cement Corp. and Hercules Cement Corp. into one firm to be known as American Cement Corp. The merger became effective December 31.

The new company will have an annual capacity of 18.5 million barrels of cement and will rank among the five or six largest cement producing firms in the nation. Its six plants will serve the northeastern states; Detroit and surrounding territory in Michigan, Ohio and Indiana; and Southern California.

Help for Housing

FHA orders the easing of minimum income standards

FHA is taking steps to bring all of its 75 field offices up to a more liberal standard of judging mortgage credit risks.

The effect will be to loosen up regulations in a few field offices that have been turning down mortgages because of what Commissioner Norman Mason describes as out-dated rules.

Housing officials feel such offices are only a small minority—that most have been approving mortgages on Mason's recommended standards right along. For that reason, they don't believe any marked stimulation of housing will result from the action.

But some lenders believe that FHA stress on the new standards will have a marked effect on the side of more starts.

"The field offices are further behind Mason than is generally realized," one lender commented. "We think the FHA action means many borrowers who would have been turned down in 1957 will get an okay in 1958."

All through 1957, Mason hammered at the field offices in an effort to assure a single set of credit standards. As the year closed, he sent out a letter restating what he considers to be up-to-date lending standards. Among these are:

• Many families can meet housing payments up to one-third of their first $3,000 of after-tax income, plus one-fifth of their income above $3,000. Standards somewhat lower than these have been used in some of the offices.

• No mortgage for a house over $12,000 cost should be turned down merely because kitchen appliances, expensive wiring or insulation are in the cost.

• The cost of operating air conditioning equipment should not result in rejection. "In a few years," Mason pointed out, "any house that is not air conditioned will probably be obsolescent so FHA should start encouraging the inclusion of air conditioning." In some district offices, officials have been ruling that the prospect of air conditioning costs automatically lessened the amount a family could set-aside for mortgage payments.

N.Y. Project Boosted

Lincoln Square gets money and wins court decision

New York City's Lincoln Square redevelopment project, the nation's largest single development planned under Title I of the Housing Act of 1949, has received two boosts toward actual construction. They were:

- A $27.3 million federal grant, which represents two-thirds of the estimated net cost of the $39.3 million to be shared by federal and city governments.
- Refusal by the State Supreme Court to prevent the city from acquiring and reselling the land.

Opponents of the 68 acre project brought the court action on grounds that resale of 320,230 sq ft to Fordham University, a Roman Catholic institution, would violate federal and state constitutional guarantees of separation of church and state (ENR Dec. 5, 1957, p. 167).

Justice Owen McGivern ruled that the sale of blighted property did not involve any "gift of subsidy" to redevelopers and that a denominational school had equal rights with other institutions to enter into contracts.

City and federal officials will sign the grant contract shortly. The city then will advertise its intention to take possession of all the properties in the 13 block area and sell them at auction to redevelopers. Transfer of title and property resale will occur between January 15 and January 31.

The project, which is west of Broadway between 60th and 70 Streets and northwest of Columbus Circle, will contain a campus for Fordham University, a park, a new Metropolitan Opera House, halls for the New York Philharmonic and local ballet group, and private housing for 4,500 families. Ultimate costs of redevelopment are expected to be $205 million.

Omaha Voters OK Bonds; Now It's Up to Courts

Voters of Omaha have approved a $9.5 million bond issue to finance construction of a postoffice-federal building. Actual work will be held up until the State Supreme Court rules upon the validity of the financing arrangement.

Meanwhile, the federal General Services Administration is considering a bid to finance the building of a $1.6 million postoffice-federal building in Council Bluffs, Iowa, across the river from Omaha. The bid, submitted by Bankers Life Co. of Des Moines, is on a 10-year return basis at a 4.9% interest rate.

Under the Omaha plan, the municipal revenue bonds would finance construction of the building. These bonds then would be retired with the receipts from the rental received by the city government from the federal government for occupancy and use of the structure under the lease-purchase program.

Low Pay, No Workers

Buffalo's public works department short staffed; building permits stalled

When an employer won't pay a competitive salary for engineers, he doesn't get them. This is well known in private industry, but Buffalo, N.Y., hasn't chosen to compete. The result is an understaffed Department of Public Works and a holdup on permits for some 42 projects totaling $2.8 million.

In some cases, a builder's recourse has been to obtain permission to excavate and start foundation work, pending the later issuance of a full building permit. One such project moved ahead with this type of city permission was the 22 story Tishman Building, which is Buffalo's first skyscraper project in 20 years. George Goetz, who left as public works department commissioner January 1, reported that many jobs had been started without full building permits, but with permission to excavate.

The department had four structural engineers two years ago, but since then the department has only one structural engineer and one building inspector doing all the work. Mr. Goetz said that since 1954 he had asked the administration for 50 more employees in the department, but each time his request died.

Officials in the administration said that the extreme shortage of help and the added work load on those remaining in the department has served to sharply lower the morale in the department. Additional help could ease this problem, they reported.

"Ability to pay" is the heart of the problem, according to George Boyle, director of the Civil Service Commission. The commission has no list of applicants for Associate Engineer ($7,500 to $8,500), Senior Engineer ($6,500 to $7,300) or Assistant Engineer ($5,330 to $6,050). Until a year ago, Mr. Boyle said, his office was unable to compile a list of draftsmen for the same reason. The situation has improved, he added, because of a cutback in drafting staffs by industry in recent months. He expected a similar improvement in engineering classifications in another six months because of the current slide in business activity.

Mr. Boyle insisted that more than basic salary is involved, however. The fringe benefits offered also are an inducement to the employee, he said, "and I recall that 20 years ago the benefits of the Civil Service couldn't be equalled."

Buffalo's architects' society and contractors' association have been prodding the city administration to relieve the situation. Robert J. Stoll, president of the Buffalo-Western New York Chapter of the American Institute of Architects, called the problem "a disgrace to the city of Buffalo, because it is delaying progress and has definitely had an adverse affect on the city's economy."

The estimated 42 projects awaiting building permits include nine with a total value of $2.5 million; six to eight totaling about $153,500; and 25 others with a combined value of $125,000.

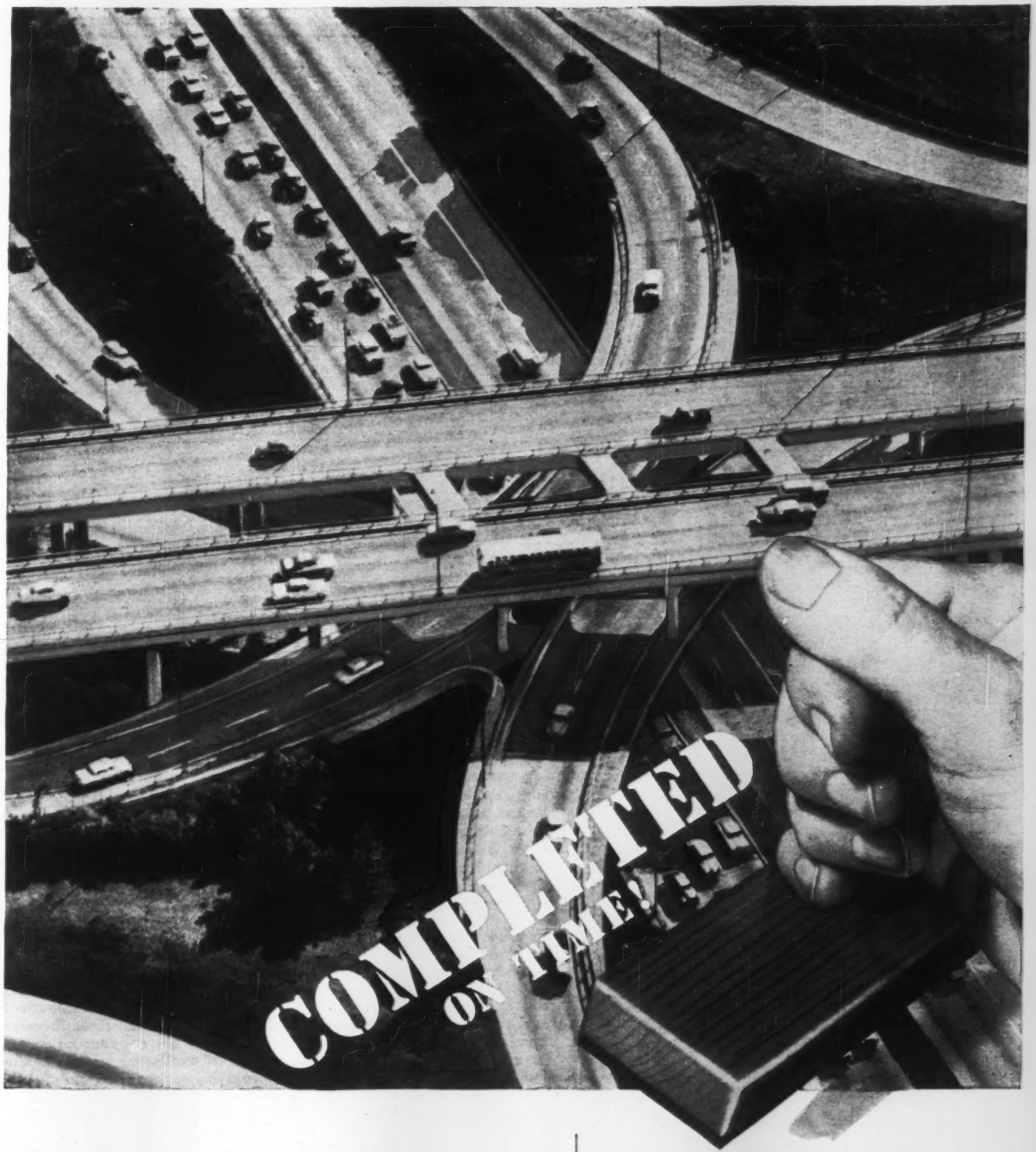
Cost Indexes Continue To Climb in January

Construction costs moved up in January, as measured by ENR's 20-Cities Construction Cost and Building Cost Indexes. The Construction Cost Index increased 0.73% in January, as compared to 0.09% in December. The Building Cost Index edged up 0.10% in January, in contrast to the 0.10% decrease in December.

The January '58 Construction Cost Index, at a new record high, is 743.44, up from December's 738.08. The Building Cost Index for January is 516.79, above the 516.28 figure for December but a shade under the November value. Both indexes are based on 1913=100.

Weekly values of these indexes dipped slightly during the month of December, but wage hikes and cement price increases effective January 2 reversed this slight downtrend. Cement prices rose 15¢ per bbl, in bulk, in five of the 20 cities.

Wage rate increases are reported in four cities. New York common labor is up 10 cents in base pay, with 8% fringe benefits unchanged bringing the current wage to $3.132 per hour. Pittsburgh reports a 15 cent hike in common labor rates in heavy construction, with the wage now $2.50 per hour. St. Louis construction trades are up: common labor rates now are $2.60 per hour; bricklayers, $4.195; carpenters, $3.55; and iron workers, $3.55 per hour. Seattle reports a 19 cent hike for common labor and carpenters and a 15 cent rise for iron workers.



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When you design in reinforced concrete: (1) you know your materials and labor are "on location"—ready to start and proceed to completion; (2) necessary field changes can be made without costly delays.

Whether a simple bridge or complex structure like this beautiful four-level highway separation structure in Los Angeles, reinforced concrete provides a construction material of unusual flexibility and durability.

Designer: California Division of Highways.

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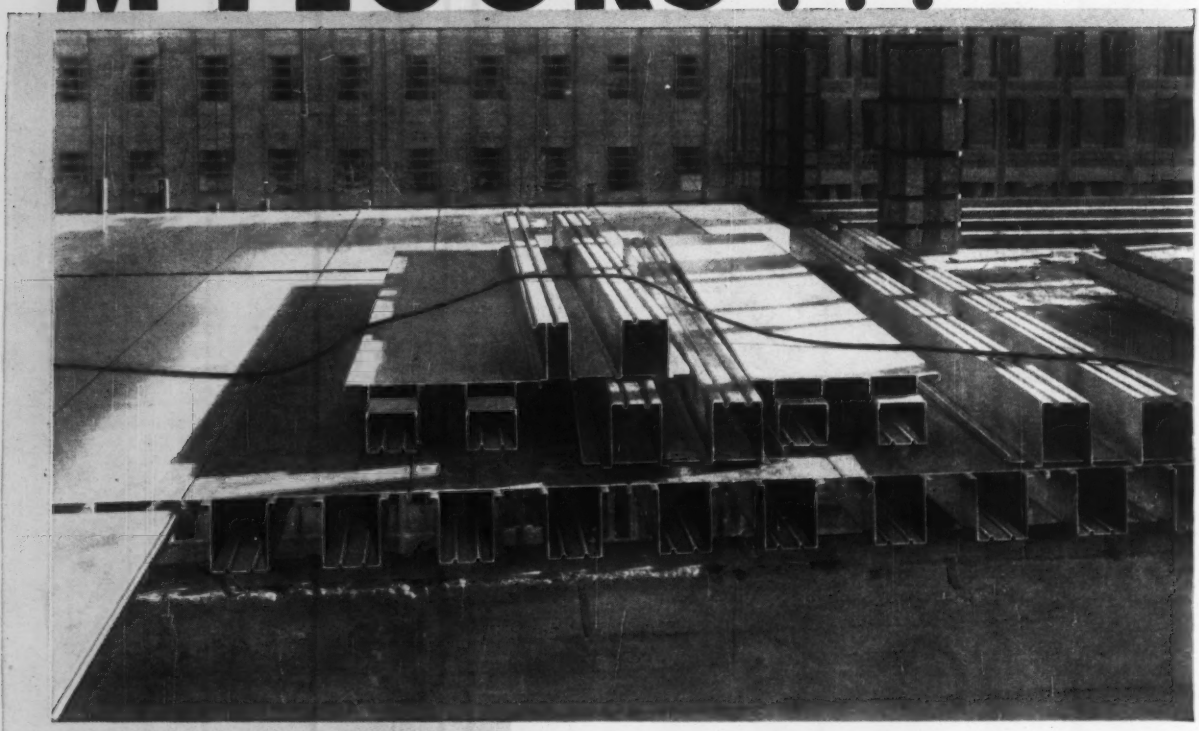
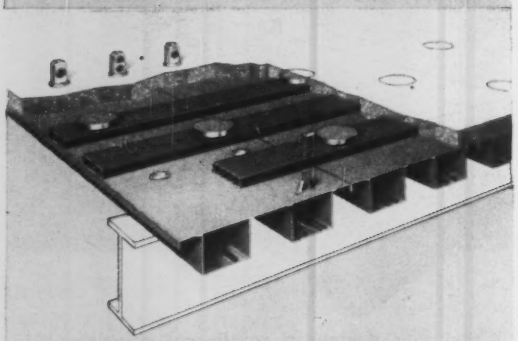


Provide Built-In Assurance Against Electrical Obsolescence!

Above is a typical Mahon M-Floor Installation. It is One of Six Similarly Constructed Electrified Cellular Steel Sub-Floors in the Ultramodern George Robert White Fund Office Building, Boston, Mass. Owner: City of Boston. Thomas McDonough, Architect. John Bowen Company, Inc. General Contractors.



Sectional View of an Electrified Cellular Steel Floor Constructed with Mahon M-Floor Section M2-4.5 and Energized with a Three Header Duct Electrical Distribution System. Mahon M-Floor Cel-Beam Sections are 24" wide, and are available in Beam Depths ranging from 1½" to 7½" to meet virtually any structural requirement.

In the multiple-story office building shown under construction above, deep Mahon M-Floor Sections were employed for the Electrified, Cellular Steel Sub-Floors which were designed for an unusual live load of 250 lbs. per sq. ft. In selecting this particular Mahon M-Floor Section, the architect assured himself, and his client, that the building would have adequate underfloor raceway capacity to meet requirements of any type of occupancy, and that it would remain electrically competitive in the rental market throughout its entire life. The 6" wide Cel-Beam Raceways in M-Floors provide further electrical advantages . . . they allow greater latitude in the location and installation of Floor Service Fittings, and they permit the use of 4" diameter Hand-Holes between Header Duct Access Units and the Cel-Beam Raceways. This is important . . . the larger access Hand-Holes save time and labor costs, not only in the initial electrical installation, but year after year, whenever changes in electrical circuits are required or additional circuits become necessary. In the M-Floor Cel-Beam Section you get a better balanced, more efficient structural unit . . . you get electrical availability in every square foot of floor surface . . . you get greater raceway capacity, greater latitude in location of floor service fittings, and greater convenience, electrically, for the life of the building. When you select a Cellular Steel Sub-Floor for a building, you will want all of the structural and electrical advantages that have been engineered into Mahon M-Floors. Comparison will convince you that the basic functional requisites of a Cellular Steel Sub-Floor are more fully realized in the design of Mahon M-Floor Cel-Beam Sections. See Sweet's Files for complete information, or write for Catalogue M-58.

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MAHON

Up in the Air

Zoning change may block 21-story building project

The American President Lines wants to add a 21-story headquarters building to the San Francisco skyline but it may conflict with the city's zoning laws. The $8-10 million building is planned for a lot only 93½x108 ft, and a zoning regulation now awaiting adoption by the city would limit a building on that size lot to 15 stories. If the company is forced to change its original plans, it will settle for a smaller structure.

In the meantime the company is trying to satisfy the zoning laws as well as its ambitions in the one way left open—purchase of air rights over a city-owned garage abutting the skyscraper's lot on two sides. If the air rights are obtained, the 14 upper stories of the building will be built with a 15 ft overhang, and the maximum 15 to 1 ratio of net floor area to lot area prescribed in the zoning law will be met.

Possession of the air rights also would insure that light and air are not cut off by future additions to the garage.

The American President Lines has offered the city $100,000 for the air rights and the operator of the garage $117,000 to be paid over the 28 years remaining on his lease. The price of the air rights is based on a figure of about $11 per sq ft. The San Francisco Parking Authority and the City Planning Commission have approved the sale, but the transaction requires agreement by several other agencies, including the Board of Supervisors.

Handling preliminary work on the building are Anshen & Allen, architects.

Structural engineers are John J. Gould & H. J. Degenkolb and Robert D. Dewell. Eagelson Engineers will handle mechanical and electrical engineering. All are San Francisco firms.

Until agreements as to the size of the building can be reached, after a final decision on zoning is made, the company is not setting a date for start of construction.

New Firm Will Expedite Orders in Eastern U. S.

Contractors operating in or outside the U. S. who order materials from the eastern U. S. can hire a troubleshooter for their supply problems as part of a new service that is being offered by the firm, R. G. Expediters Service, New York City.

This new business has been organized to perform a range of functions that are usually handled by purchasing representatives or departments. It will locate sources of supply and obtain quotations, proposals, catalogs and samples.

It also offers special services such as providing evaluations of alternative sources of supply.

Manager of R. G. Expediters Service is Robert F. Gueydan, who was formerly manager, vice president and director of Alberto Ubbelohde, Inc. Previously, he was assistant director of purchases for Remington Rand Division, Sperry Rand Corp., and procurement representative of Convair, a division of General Dynamics Corp.

December Contract Awards at a Five Year Low

Although 1957 wound up as the third best year on record, December itself proved disappointing to the construction industry.

With a total of $967 million in contract awards, the month was the lowest December recorded in the last five years and the poorest single month of any since March 1954. Total volume skidded 22% below November 1957, and represented a resounding drop of 39% from one year ago.

Responsible for the month's unsatisfactory showing was the dwindling of volume in private work. Every type of private awards was down sharply for the month and the year.

The public works awards were the most encouraging section in the report for the month. State and municipal awards of $505 million were up 17% from a year ago, although federal projects were hit by a sharp decline of 57%.

Road contracts of $190 million topped all contracts for the month and were up 3% over the figure for November, and 16% above December 1957, to set a record of nearly $3 billion for the full year.

Engineering Construction Contracts — December '57

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Four Weeks Thousands of Dollars (000 Omitted)

	December, 1957							U. S. Cumulative Twelve Months		% Change	Canada December
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1957	1956	'56 to '57	1957
Public Works											
Waterworks	289	2,618	7,040	4,245	10,440	6,843	31,475	369,027	356,453	+ 4	635
Sewerage	980	3,435	4,693	22,912	9,318	3,485	44,823	556,038	578,795	− 4	1,138
Bridges	1,633	5,975	4,184	8,802	8,745	15,813	45,152	771,987	611,551	+26	849
Earthwork and waterways	1,548	1,110	5,526	1,604	9,508	5,939	25,235	969,393	729,523	+33	233
Streets and roads	3,810	11,741	45,420	48,665	64,042	16,467	190,145	2,964,563	2,474,613	+20	5,461
Public buildings, residential	349	1,942	12,845	845	17,195	639	33,815	641,812	317,779	+102	.....
Other public buildings	13,709	36,106	20,772	27,037	24,790	39,248	161,662	2,352,732	2,099,455	+12	15,155
Unclassified	800	3,564	6,980	2,628	6,962	3,894	24,828	974,740	1,053,462	− 7	558
Total public	**23,118**	**66,491**	**107,460**	**116,738**	**151,000**	**92,328**	**557,135**	**9,600,292**	**8,221,631**	**+17**	**24,029**
Federal government (included in above classifications)	2,384	8,524	19,350	339	11,040	10,713	52,350	2,184,898	1,688,678	+29	181
Private											
Bridges	.....	.....	.....	.....	.....	.....	.....	9,426	10,366	− 9	.....
Industrial buildings	4,230	18,652	12,775	33,984	52,727	14,758	137,126	3,081,018	5,334,782	−42	26,253
Mass housing	22,120	75,690	12,556	15,256	23,014	5,351	153,987	3,038,703	5,306,784	−43	14,815
Commercial buildings	5,919	26,905	7,947	22,702	12,338	29,682	105,493	1,756,644	2,051,103	−14	8,668
Unclassified	904	150	467	820	9,362	1,456	13,159	499,762	787,315	−37	700
Total private	**33,173**	**121,397**	**33,745**	**72,762**	**97,441**	**51,247**	**409,765**	**8,385,553**	**13,490,350**	**−38**	**50,436**
Total Engineering construction:											
December, 1957—4 weeks	**56,291**	**187,888**	**141,205**	**189,500**	**248,441**	**143,575**	**966,900**	.....	.....	....	**74,465**
November, 1957—4 weeks	89,098	356,505	136,051	227,259	236,196	186,791	1,231,900	.....	.....	....	88,910
December, 1956—4 weeks	54,050	508,703	170,605	326,001	357,628	173,246	1,590,232	.....	.....	....	68,704
Twelve Months—1957	**1,191,263**	**4,340,329**	**2,258,683**	**3,932,700**	**3,470,571**	**2,792,299**	.....	**17,985,845**	.....	**−17**	**1,484,834**
Twelve Months—1956	1,108,234	5,595,803	2,556,205	4,624,892	4,732,484	3,094,363	.....	.....	21,711,981	....	2,110,661
% Change '56 to '57	+7	−22	−12	−15	−27	−10	.....	.....	.....	....	−30

Law Construed to Protect Subs

NLRB says the law prevents a general contractor from using union status as reason to suspend a sub

The right of a general contractor to elect not to do business with a subcontractor because of the latter's union status has been seriously questioned by the National Labor Relations Board.

In a complex and split decision, a majority of the board has ruled that a member of the Associated General Contractors of America and two of its chapters unlawfully discriminated against employees of a subcontractor when the sub was suspended because its employees were organized by Engineers and Scientists of California (a union of engineers) instead of by the AFL-CIO operating engineers union.

The decision, if sustained, contains a number of far-reaching implications for both labor and management in the construction industry. It treads close to a host of controversial problems such as secondary boycotts, union organization of the kind that occurred under the Chicago plan in Baltimore, use of union and nonunion men on the same job, right-to-work laws and the celebrated Denver Building Trades Council case of 1951.

• **Genesis**—The present case arose in California, where Local 3 of the operating engineers union and ESC have been in open competition for members in the engineering field for several years.

The Northern and Central California Chapters of AGC had a labor contract with Local 3. The contract required all employees that it covered to be members of the local and, by its terms, was effective as to all subcontractors used by the AGC members. Employees engaged in survey and engineering work were mentioned specifically.

For a construction job at Travis Air Force Base, four of the AGC members—acting as a joint venture—engaged St. Maurice, Helmkamp & Musser as an engineering subcontractor to do field survey work at the project. Musser's employees were members of the San Francisco Area Group of Professional Employees (now known as Engineers and Scientists of California).

The operating engineers first advised the AGC that Musser's employment was in violation of the labor contract and, receiving no reply, struck the project. Musser's work was suspended by the joint venture. Later, the NLRB, acting under the secondary boycott provisions of the Taft-Hartley Act, issued a consent order directing the operating engineers to stop the strike. As a result, the local waived its contract rights and agreed to let Musser's men work.

Unfair labor practice charges were filed against the AGC chapters and Local 3. Principal questions—and ones over which the NLRB split—were these. Is an employer violating the law by encouraging or discouraging membership in a union, and thus discriminating against employees, when the steps he takes are directed not against his own employees, present or potential, but against another employer? Is an otherwise valid union shop clause with a general contractor invalid if made binding on subcontractors? (Both relate to the right of employees to join unions of their own choice, free from coercion, domination or discrimination.)

• **Decision**—Three board members (Rodgers, Jenkins and Bean) ruled that the acid test is whether discrimination occurred, not how it occurred. They said the law does not require the discrimination to be made by an employer against his own employees, but can occur through the pressure applied, as here, by one employer against another.

Mr. Bean noted that the law does not require the existence of an employer-employee relationship in the legal sense. "Realism requires the conclusion," he said, "that a general contractor on a project on which subcontractors' employees are actually employed is as much in control over those employees' status on the project as are their direct employers."

Two board members (Rodgers and Jenkins) held that the union shop clause, as extended to subcontractors, was illegal in itself. Under the law, they said, the clause cannot extend beyond the collective bargaining group covered by the contract. They viewed it as a gross violation of the organizational rights of employees to choose or not to choose between unions and as a device for "future wholesale discriminations."

Mr. Bean did not consider the clause illegal because the relationship between the general contractor and employees who might be put on a job by subcontractors is too "remote and speculative."

Two board members (Leedom and Murdock) violently disagreed with Members Rodgers and Jenkins on both points.

There is nothing in the law, they said, that prevents an employer from discriminating against another employer, or that curbs his right to do or not to do business with another employer because of the union activity of the latter's employees. The law is not designed, they declared, "to protect the business of employers who have yielded or refused to yield to the demands of labor organizations."

Registering a strong protest against any tampering with the legal status of an independent contractor, the dissenters said the use of generals and subs on the same job does not eliminate the status of each as an independent contractor nor make the employees of one the employees of the other. To hold otherwise, they said, would ignore the Denver Building Trades case which has been "the heart and core of the board's and the courts' secondary boycott findings in construction cases for more than six years."

(In the Denver case, which involved union objection to working alongside nonunion men, the union general contractor hired a nonunion electrical subcontractor whose men were paid less than the union rate. Viewing this as a threat to their wages and working conditions, the unions picketed the project, the picketing being directed at the sub. The U. S. Supreme Court ruled that the general contractor was a neutral or secondary employer and that the picketing constituted an unlawful secondary boycott. President Eisenhower's proposal on boycotts would reverse this decision.)

In considering this point, Members Rodgers and Jenkins indicated that an employer, through pressure on another employer, could discriminate against employees and still not upset the activity of the striking union as a secondary boycott.

Immediate effect of the decision is to kill the AGC subcontractor clause with Local 3 by outlawing its implementation and to make the AGC and Local 3 reimburse the Musser employees for the losses they suffered.

Geographically, the decision has wide application. The two AGC chapters, in the aggregate, perform more than 90% of the major heavy highway, engineering and building construction work in a 46-county area, and subcontract approximately 66% of the professional engineering and field survey work performed.

Southern Group Alerts Its Members to Union Drives

The Tennessee Manufacturers Association has reported that union organizing activity is on the increase throughout the South.

It has warned its members to beware of reports that unions have given up in southern states.

During the first 11 months of 1956, according to the association, 798 union elections were held in 13 southern states; unions won 363 and lost 435.

In 1955 and 1956, unions won about 43% of the Tennessee elections. During January-November 1957 they won more than 50%, the association said.

Comparisons with other southern states showed unions winning: Alabama, 20 of 47 elections; Arkansas, 19 of 39; Florida, 46 of 100; Georgia, 39 of 84; Kentucky, 20 of 49; Louisiana, 35 of 68; Mississippi, 6 of 20; North Carolina, 26 of 70; South Carolina, 5 of 9; Texas, 58 of 127; and Virginia, 26 of 59.

Since September 13, the association said, the southern states have accounted for 34% of all National Labor Relations Board elections, although the states contain only 14% of the nation's employers.

In contrast to this report, AFL-CIO President George Meany recently said the federation is "not doing too well" in organizing. "We are not getting too many new people," he noted.

Deadlock in Negotiations Stalls Arkansas Projects

A breakdown in contract negotiations with four unions last week idled 5,000 construction workers in 15 central and western Arkansas counties.

Agreements with carpenters, ironworkers, laborers and cement finishers expired December 31.

Negotiations between the carpenters and the Associated General Contractors are viewed as the pacemaker, with the other unions expected to follow the pattern these two groups establish.

Carpenters originally asked for 50 cents an hour in a two-year contract. The AGC first offered 20 cents over a 30 month period, then dropped it to 10 cents for two years with a sixth holiday, a 1% boost for apprentices and a 10 cent raise for power saw (two or more horsepower) operators. Union countered with a demand for 40 cents in 18 months or 50 cents in 30 months.

Biggest project to be hit is a $21 million housing program at Little Rock Air Force Base.

(*Labor continued on page 108*)

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TVA Wages Boosted

Construction workers receive 5% increase

Construction and maintenance employees of the Tennessee Valley Authority have been granted a 5% wage increase totaling $2¼ million a year. The increase, which affects 9,000 workers, is based on wages prevailing in the area.

According to TVA General Manager A. J. Wagner, the wage boost was negotiated by the TVA board and the Tennessee Valley Trades and Labor Council.

The council bargains for AFL-CIO craft unions representing 4,300 hourly paid construction workers and 4,700 operating and maintenance workers paid on an annual basis.

Wages are negotiated annually and are required by law to represent the prevailing wage for similar work done for private employers in the seven-state valley. Period used for the equation is the previous 12-month period.

Biggest hourly increase—20 cents—went to boilermakers who now receive $3.45 an hour. New wage scales range from $1.77½ for laborers to $3.62½ for bricklayers.

Among those on an annual basis, journeymen metal workers received a $278 annual increase, carpenters $230 and laborers $200.

This is how new and old rates compare for construction workers:

Craft	Old rate	New rate
Bricklayers	$3.50	$3.62½
Boilermakers	3.25	3.45
Carpenters	2.82½	2.95
Electrical workers	3.22½	3.32½
Iron workers, structural	3.05	3.20
Lathers	2.95	3.07½
Operating engineers (heavy equipment)	3.05	3.20
Painters	2.90	3.02½
Plasterers	3.02½	3.15
Plumbers, steamfitters	3.22½	3.32½
Roofers (composition)	2.30	2.45
Sheet metal workers	3.02½	3.15
Teamsters (heavy trucks)	2.27½	2.37½

Ice Harbor Dam Dispute Spawns Third Lawsuit

Curtis Construction Co. of Spokane last month filed a $165,135 damage suit against the Pasco local of the carpenters union.

It was the third of its kind to be filed against the local union in federal court at Yakima, Wash., over work stoppages at Ice Harbor Dam between June 6-22 and September 10-26.

The work stoppages stemmed from a jurisdictional dispute between carpenters and iron workers over the rigging of forms at the dam.

Other suits have been filed by Holeman Electric Co., Pasco, for $73,786 and by Montag-Halvorson-Austin & Associates, Portland, Ore., and Pasco, prime contractor, for $514,000.

President Meany Stresses Fairness, Justice to All

AFL-CIO President George Meany last week said that only "improvement in wages and progress in building a better standard of living for all Americans can provide our economic system with the broad base it must have for widespread prosperity."

The statement was part of Mr. Meany's New Year message.

Asserting that the United States is at a "critical juncture" in its history, he called upon the American people to "see the facts of life as they are."

Our "number one" job, he said, is to build up our military strength to preserve the free world from Communist domination. He pledged labor's cooperation in that endeavor but said that the AFL-CIO will "insist" that the cost of preparedness be shared equally by "all segments of American life."

On the domestic front, he said the "basic solution" to our "faltering" economy depends on a recognition of the fact that "the long-run good health of our economy depends upon consumer spending and consumer buying power."

According to Mr. Meany, the AFL-CIO during 1958 will press that belief both at the collective bargaining table and in the legislative halls where it will seek "fairness and justice." "Improved contracts," he declared, "will not only better meet the needs of organized workers" but also will aid "the entire economy." And in the legislative reforms it seeks, he noted, the guiding principle will be that "what is good for America is good for organized labor."

Contractors Urge Self-Help

New Jersey Building Contractors Association asks labor to join in a joint program to reverse building decline

The Building Contractors Association of New Jersey has requested the cooperation of the state AFL-CIO building trades in warding off what now appears to be the first decline in New Jersey building activity since the end of World War II.

On December 27, the association's managing director, Paul Brienza, met with Sal Maso, president of the New Jersey State Building and Construction Trades Council, AFL-CIO, to explore a plan of joint action.

Suggestions that were discussed included possible acceleration of state and federal public works programs, assistance in attracting new industries to the state, a study and evaluation of Mr. Richard Gray's wage freeze proposal, and efforts to reduce work stoppages in jurisdictional disputes.

In commenting on the meeting, Mr. Brienza said the "feeling of uncertainty and lack of optimism" with respect to the industry's future has led the association to feel that the time has come to "take inventory" and to do something about the possible decline in building "before it gets a head start."

Mr. Maso plans to call a meeting of his Executive Board to discuss the joint program proposal.

In the field of public works, it was suggested that labor and management meet with Gov. Robert Meyner and with U.S. senators and congressmen to request an immediate study of all proposed public building construction projects with a view to accelerating the starting times to relieve the lull that's hit the industry in the state.

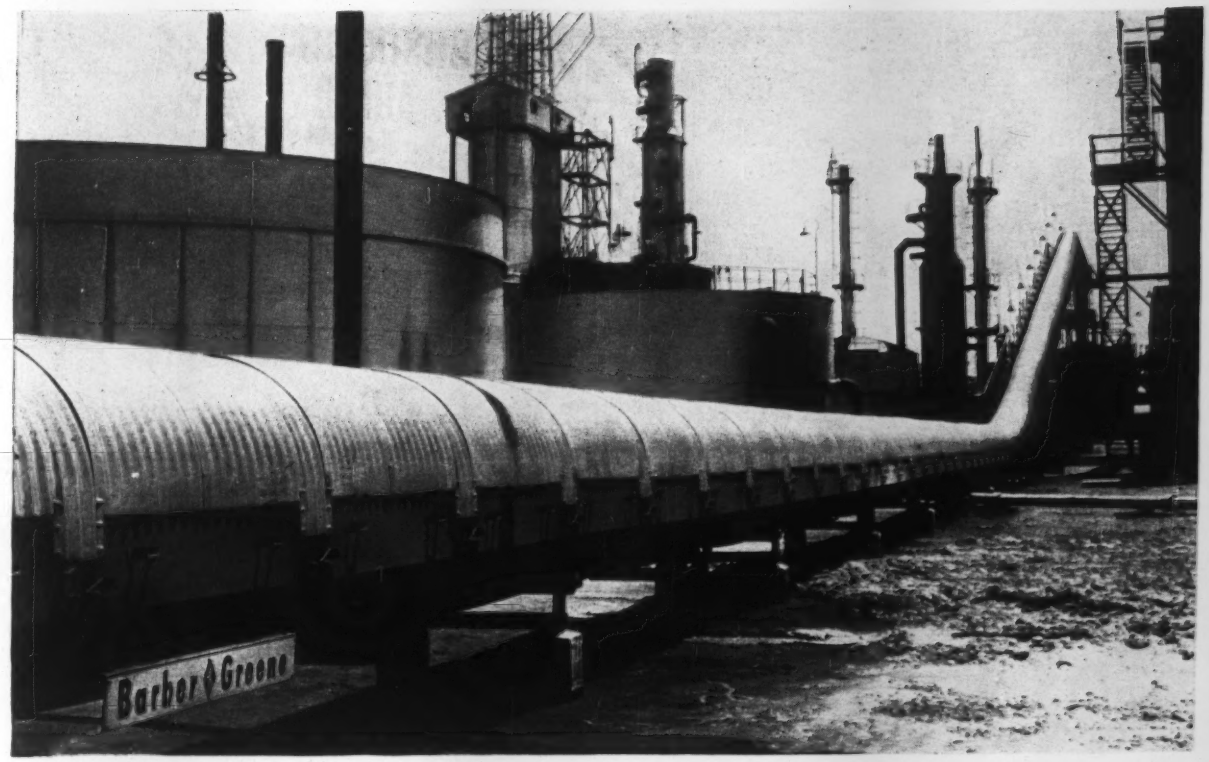
Mr. Brienza called upon labor and management to "do everything in their power to improve the economic factor of building costs." He suggested formation of a special Joint Committee to study the Gray proposal for a moratorium on wage increases.

In December, Richard Gray, president of the AFL-CIO Building and Construction Trades Department, suggested that the building trades unions consider a voluntary wage freeze for 1958 as one way of combating present inflation. Such a step, he said, might help to achieve full employment through increased construction and also be a way of avoiding government wage and price controls.

Stating that wage increases for the various crafts in the state have risen from 60 cents to $1.25 an hour since 1952 and from $1.25 to $2.50 since 1946, Mr. Brienza said a realistic approach must be taken to the wage problem. (According to Mr. Brienza, a northern New Jersey iron worker, for example, now receives $4.40 an hour, plus 3% for welfare, 3% for pension.)

The association has also suggested that an effort be made to curtail strikes over contract problems that can be arbitrated without economic loss.

(*Labor continued on page 111*)



This 487-ft. Barber-Greene Conveyor, one of five at the new plant, carries wet Gilsonite from the filter plant to the melt tank.

Barber-Greene Conveyors move Gilsonite faster, at less cost

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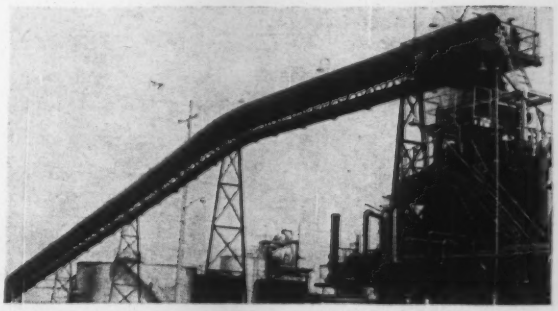

When material from the filter plant is not being fed to the melt tank (above, right), it is stockpiled by a Barber-Greene Radial Stacker to permit the plant to operate when the mine is shut down.

57-15 PE

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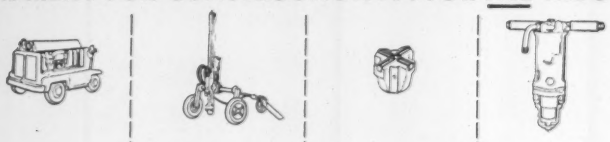

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Contractor, Labor Argue Prevailing Wage Savings

James A. Price, chairman of the New Mexico State Labor and Industrial Commission, has accused the Associated Contractors of New Mexico of receiving $200,000 "at the expense of the taxpayers and the nonunion employees of the highway contractors."

The charge marked another round in a bitter feud over wage determinations under the state's prevailing wage law.

Pending a decision by the District Court in Santa Fe, the State Labor Commissioner has been restrained temporarily from putting into effect a new schedule of wages for highway contractors.

The injunction was obtained by members of the contractors association. The wage determinations under attack are said to have coincided with "the few union wage contracts" in effect for such work in New Mexico, R. E. Miller, manager of the association, said the injunction has saved taxpayers $200,000 in bids let during October and November.

Mr. Price, who is also head of the New Mexico AFL-CIO, challenged the statement. He said union contractors have been paying the wage scale now under attack for over a year and have still been able to bid successfully on some of the road contracts let since October 1. Because of this, he asserted, "it appears" that "Miller's group" received the $200,000 at the expense of taxpayers and workers hired by nonunion contractors.

According to Mr. Miller, only 10 or 11 of the nearly 50 road contractors in New Mexico operate under union contract.

Question of Jurisdiction Stymies a UCW Employer

The animosity that exists between the AFL-CIO building trades and the United Mine Workers' United Construction Workers has taken a contractor on a church project into the jurisdictional no-man's land between the National Labor Relations Board and state courts.

Contractor building a church in Gowanda, N. Y., had a labor contract with and was using UCW workers. The AFL-CIO Building and Construction Trades Council of Buffalo and Vicinity picketed the project. A permanent injunction against the picketing was denied by a state supreme court justice because he felt that the NLRB and not the state court had jurisdiction.

The union group contends that it has the right to ask employees of the general contractor to join the council and that it has the right to engage in peaceful picketing. The contractor claims UCW has been certified by the State Labor Relations Board. The court says it is a problem for the NLRB to resolve.

According to Secretary of Labor James P. Mitchell, the Administration will ask the present session of Congress to clarify the jurisdictional line between state courts and the NLRB.

Employers Asked to Avoid Neutrality on Unionizing

Commenting on a recent rejection of union representation by engineers of the Electronics Division of Westinghouse Electric Co., Garvin H. Dyer, president of the National Society of Professional Engineers, said that "unions are not an acceptable mechanism to deal with the problems and aspirations of professional engineers."

The Westinghouse rejection was by a vote of 171 to 115.

Mr. Dwyer viewed the percentage of engineers voting for unionization as "a challenge to industrial employers, the engineers themselves and the professional engineering society."

Subscribing to the need for outspoken and aggressive leadership in meeting union bids to represent professional engineers, Mr. Dyer said management has indulged too often in a hands-off attitude of neutrality. "This sometimes resulted," he observed, "in engineers voting for union representation, not realizing the difficulties they would have in escaping from their plight when they found that such a form of union representation was contrary to their professional ideals and professional status and growth."

Mr. Dyer said it is important for management continually to analyze its policies and personnel procedures to meet the reasonable expectations of professional employees and suggested the problem be approached "in a cooperative spirit of teamwork" between engineers and employers.

Labor Briefs . . .

• **Turnpike union**—The Pennsylvania State Employees Council has organized over 500 employers of the Pennsylvania Turnpike Commission. Immediate objective is a 25% wage increase and improved working conditions. New union is Turnpike Employees Local 1386, affiliated with the American Federation of State, County and Municipal Employees (AFL-CIO).

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New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 30th day of January 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York						
Saratoga	FISH 58-24 FARC 58-17	Interstate Route 502, Sect. 2, Cont. 3 (Mohawk River to Clifton Park); Lapes Corners–Clifton Park, S.H. 8137; Mechanicville–Clifton Park, S.H. 1345 and various Cross and Access Roads Project I-1119(11); S-202(3)	6.45 (5.93 ACC.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wide = 9.10 Miles Asphalt Concrete = 1.52 Mi. Graded Gravel Top Course = 1.28 Mi. Misc. Work = 0.48 Mi. 5 Hy. Seps. Comp. I-Beams 305', 359', 344.7', 320' and 156.5'	$360,000 Plans $20	$6,533,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Putnam	FESS 58-17	Farmers Mills Road, C.R. 402 Proj. ER-83(1)	0.18	Bit. Surf. Treat. Granular Bottom Course Comp. I-Beam Bridge 40'	$5,000 Plans $2	$87,000
Putnam	FESS 58-18	Peekskill Hollow Road, C.R. 201 Church Street, C.R. 202 Project ER-89(1); ER-90(1)	0.40	Bit. Surf. Treat. Granular Bottom Course 2 Comp. I-Beam Bridges 76' and 61'	$23,000 Plans $3	$417,000
DISTRICT No. 10, M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L.I., New York						
Bronx	FICBE 58-2	Cross Bronx Expressway, Cont. 6, (Clay Avenue to Fulton Avenue) and various Cross Streets and Service Roads Project I-U-1084(30)	0.45 (0.74 ACC.)	9" Cem. Conc. Pavt. with Carb. Black 2 @ 39' Var. Wide = 0.38 Mi. Sheet Asphalt Pavt. = 0.69 Mi. Granite Block Pavt. = 0.05 Mi. Misc. Work = 0.07 Mi. Viaduct Comp. Plate Girders 1566.8'	$320,000 Plans $20	$5,863,000
Nassau	PSC 7278	Elimination of Grade Crossings of the Long Island Railroad with various Streets in Freeport	2.26 (0.56 ACC.)	Track Relocation, Freight House, Station and Misc. = 2.26 Mi. 9" Cem. Conc. Pavt. Var. Wide = 0.50 Mi. Asphalt Concrete Pavement = 0.06 Mi. 7 R.R. Seps. Plate Girders 80', 78', 76', 87', 86.5', 117.5', and 100' 1 Viaduct 1874'	$361,000 Plans $20	$6,565,000
Nassau and Suffolk	SSPRC 58-1	Southern State Parkway, Cont. 8A	4.41	Landscaping	$14,000 Plans $3	$251,000
Queens	P.S.C. T.C. 3518, 3519, 3607	Elimination of Grade Crossings of the Long Island Railroad with Various Streets (Old Southern-Rosedale, Westerly Section) (South Road, Jamaica to Springfield Boulevard, Laurelton)	3.18 (0.68 ACC.)	Track Relocation and Misc. Work = 3.18 Mi. Asph. Conc. Pavt. = 0.68 Mi. 9 R.R. Seps. Plate Girders 79', 94', 101', 186', 98', 93.5', 106.5', 89', 133.5' 2 Ped. Underpasses W.F. Beam 34' Each	$400,000 Plans $20	$7,635,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: January 21, 1958

Contract PN-502.324

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
BORINGS
WEST END OF CITY CHANNEL

Sealed proposals for making borings and taking samples at the West end of the City Channel at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 21, 1958, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Engineer of Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 9, 1958

Bids: March 10, 1958

Government of Iraq Development Board & Ministry of Development Baghdad, (Iraq)

The Development Board and Ministry of Development, Baghdad, Iraq, invite experienced contractors to tender for the construction of the Shattrah Drainage System in Southern Iraq.

The Work consists of excavating 9,000,000 m^3 of earth together with the construction of appurtenant structures.

Copies of the documents for tender may be inspected on or after 10/12/1957 at the following addresses:

a) The premises of the Consulting Engineers, Tippetts-Abbett-McCarthy-Stratton, Baghdad.
b) Iraqi Embassies or Legations in Washington, London, Bonn, Brussels and Rome.

Tenders should be delivered to the Director General of Contracts and Legal Affairs, Ministry of Development, Baghdad, on or before 12:00 noon local time on March 10th, 1958.

The Board does not bind itself to accept the lowest or any tender.

Minister of Development.

Bids: January 23, 1958

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Eastern Standard Time, on January 23, 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 505, BROOME COUNTY LINE TO 0.22 MILES SOUTH OF INTERSECTION OF STATE ROUTES 11 AND 41 AT POLKVILLE, PROJECT 1-1127(1), ITEM 36, CORTLAND COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. FA-SM-113.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.
(b) Mr. Earl E. Towlson, District Engineer, New York State Department of Public Works, 333 East Washington Street, Syracuse, New York.
(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $35,975.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: January 30, 1958

New Jersey Turnpike Authority

CONTRACT NO. N-86

Proposals are invited for Contract No. N-86 which involves additional drainage facilities and other incidental work between Brown Place and Communipaw Avenue in Jersey City, Hudson County, New Jersey, all in connection with the construction of the Newark Bay-Hudson County Extension of the New Jersey Turnpike.

The principal items of work include:

Borrow Excavation	500 Cu. Yds.
Regrading	70,000 Sq. Yds.
Topsoiling	22,000 Sq. Yds.
Drainage Ditches	14,500 Lin. Ft.
Reinforced Concrete Storm Drains	280 Lin. Ft.
Corrugated Metal Storm Drains	920 Lin. Ft.
Reinforced Concrete Culvert Jacked in Place	160 Lin. Ft.
Fire Dike	1,900 Cu. Yds.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock, Eastern Standard Time, on the morning of January 30, 1958, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours on or after January 8, 1958, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 99 Church Street, New York 7, New York. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Joseph Morecraft, Jr., Chairman

January 3, 1958

Bids: January 28, 1958

Contract NYA-960.001

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
ROADWAY BY-PASS

Sealed proposals for construction of a roadway by-pass at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, January 28, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 9, 1958

Bids: January 30, 1958

Contract U.S.-95 for Lock 12, Erie Canal

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Barge Canal Improvement Law and Highway Law, sealed proposals will be received, until 10:30 A. M., January 30, 1958 by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract U.S.-95 for New Gates and Lowering the Lower Sill at Lock 12, Erie Canal, Tribes Hill, Montgomery County, New York

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, N. Y.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract U.S.-95 may be examined and obtained at the office of Mr. Lacy Ketchum, 109 North Genesee Street, Utica 1, New York.

The deposit for Plans and Proposal Forms for Contract U.S.-95 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's Estimate of Cost for Contract U.S.-95 is confidential and will be made known at the time of receiving bids.

Proposals for Contract U.S.-95 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of five percentum, (5%) of the bid. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Barge Canal Improvement Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Prequalification Date: January 16, 1958

Board of Education Bureau of Construction

Notice Re: Prequalification Forms for Contractors

NOTICE IS HEREBY GIVEN THAT The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y. will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures, and elevators and escalators for the new High School of Industrial Arts and Public School 59, Manhattan W. S. of 2nd Avenue, bw't E. 57th & E. 58th Streets.

Prequalification application forms will have to be secured from and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, 42-15 Crescent Street, Long Island City 1, N. Y. Room 407.

Bids when advertised, will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, January 16, 1958.

WILLIAM H. CORREALE
Superintendent of School Buildings,
Design and Construction
Dated: December 24, 1957

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5006) will be received at Denver, Colorado, until February 6, 1958, for furnishing two 144-inch butterfly valves, which at contractor's option may be either of Government design or contractor design, for Fremont Canyon Powerplant, Missouri River Basin Project, Wyoming. Delivery is desired within 360 days, 1st valve; 390 days, 2nd valve. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

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P. O. Box 12, N. Y. 36. January 23rd issue closes January 13th

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Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

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A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

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Superintendent thoroughly qualified, large sewer & watermain installations. Permanent, N. Y. State. P-6844, Engineering News-Record.

Civil Engineers—*Resident engineers to supervise construction inspection of earth fill and concrete dams in central and western Pennsylvania. Must be graduate civil engineer and show satisfactory experience in inspection and administration of contract work. Salary open. Submit resume, salary requirements and three references. P-6897, Engineering News-Record.

Wanted: Civil Engineer experienced in water filter plant design and deep well water supply in coastal areas. Give complete educational and experience record and salary requirements. P-6900, Engineering News-Record.

Experienced Estimator—General Contractor, commercial, industrial, civic and school construction, $100,000 and over, New Hampshire Civil Engineer or equivalent. Send resume of education, experience and salary required to P-6722, Engineering News-Record.

Help Wanted—Male Experienced Graduate Engineer for structural steel take-off and estimating. Box 955, New Haven, Conn. Must hold, or be able to procure immediately, Conn. State License.

Designer-draftsman, preferably in 30's with mechanical and electrical experience, capable of making plumbing and electrical layouts for one-family and row house developments in Florida, Carribbean and Middle East. Ability to write outline specifications desirable. Occasional travel involved. Salary $150-$175 per week. Retirement benefits, life insurance and medical care included. P-6977, Engineering News-Record.

Engineers qualified by experience for positions as resident engineers on sewer construction, also well qualified inspectors for Ohio municipal projects. P-6960, Engineering News-Record.

Civil and sanitary engineers qualified by training and experience on design of municipal water and sewage treatment projects. Please provide complete information and references. Old consulting organization. P-6972, Engineering News-Record.

Civil Engineer; College Graduate, Municipal experience preferred. Salary open. City of Rockford, Illinois, Apply Civil ervice Commission, 126 South First Street.

Construction superintendent, thoroughly qualified in estimating and field supervision. Must have experience and references. Steady employment. Iowa and Illinois location. State education and expected salary. P-6964, Engineering News-Record.

CIVIL ENGINEER

Consultant in midwest needs engineer well versed in concrete control and concrete paving practice. Must have degree and be over 30 years. Salary $8,000 minimum. Submit complete resume.

P-6946, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

Civil Engineer — Professional — Land Surveyor: Consultant; Construction, Per Diem or Contract: Anywhere; Resume on request. PW-6904, Engineering News-Record.

Project or Office Engineer, MCE, 34, 9 years experience in idustrial and heavy construction, desires position in middle Atlantic states or Florida. PW-6909, Engineering News-Record.

Office & Cost Engr., 32, graduate Civil Engineer with 7 years of varied experience, including cost engineering estimating, liaison and field inspection would like to work for general contractor or consultant, foreign assignment preferred. Completing present foreign job and will be in the States by January 15. Resume on request. PW-6858, Engineering News-Record.

Ground Water Geologist-Geophysicist. 37, married. B. S., M. S., geology credits for D.Sc; physics minor, calculus, physical chemistry, engineering subjects. Returned from Turkey, Iran, Libya, Spain, Greece in charge of U. S. military water supply programs. 5 years U.S. Geological Survey. Experienced in electrical resistivity, magnetometer, seismograph, air photography-mapping, piloting, supervision, reports. Desire water exploration, exploitation, improvement, or research, with industry, consultant, or public organization. PW-6925, Engineering News-Record.

Mgr. or Gen. Supt.; 30 years experience in all phases of general construction; earthmoving, heavy rock, dam, airfields, roads, asphalt or concrete paving, power houses, docks, concrete and steel structures, bridges. Available immediately. Foreign or domestic. Have well qualified following of key men. Resume upon request. PW-6917, Engineering News-Record.

Civil & Structural Engineer, 35, European background, German degree, 6 years U. S. experience in design of ind'l bldgs. U. S. citizen. Languages: English, German, Serbo-Croat, French. Desires position abroad. PW-6831, Engineering News-Record.

Construction Engineer B.C.E. 9 years experience in building construction, field and office engineering, field supervision, expediting, estimating and project engineer. Reply PW-6934, Engineering News-Record.

Mechanical Engineer, 25 years experience, design, inspection, supervision, desirous overseas work in field or office. Completed former contracts. PW-6922, Engineering News-Record.

Construction Engineer desires field or office position. B.S.C.E., age; 39, experienced earth moving, form design, & concrete construction. Prefer West or Southwest location. Available 15, Jan. PW-6962, Engineering News-Record.

General Contractor's Estimator or Chief, broad experience, desires responsible position, competitive bids, purchasing, subcontracts, handling to completion. Proven record, references. PW-6971, Engineering News-Record.

(Continued on opposite page)

POSITIONS WANTED
(Continued from opposite page)

Construction and Engineering—24 years' experience. Last 10 years heavy concrete construction. Graduate C.E. General construction management, engineering, supervision, estimating, including quantity analysis to bid pricing, contract negotiations and labor relations. Will consider foreign assignment. PW-6970, Engineering News-Record.

Construction Man available early 1958. Twenty years competitive experience on Federal, Municipal and Institutional projects. Cost conscious and good organizer for both bidding and building. Prefer percent-of-profit agreement. Will consider all opportunities. PW-6981, Engineering News-Record.

Danish Civil Engineer, A.M. A.S.C.E; M.S.C.E. 30, 7 years experience, 5½ years structural design and supervision of prestressed concrete and steel structures in Europe, 1½ years teaching in U.S.A., Associate Professor. Available July 58. Location desired: California, New England or Foreign. PW-6980, Engineering News-Record.

Blasting Engineer, wide experience, latest methods. Available now. J. R. Ross, 216 South Rochester, Mich. Phone OLive 1-6645.

Construction Executive. 20 years experience in Heavy Construction. Airports, Expressways, Highways, Power Plants, general grading and concrete construction. Estimating thru pricing. Construction supervision. Desire permanent position with well-established contracting firm in southeastern U.S. Presently employed. PW-6978, Engineering News-Record.

Chief Draftsman—reinforcing steel and steel joists. Proven administrative ability. PW-6973, Engineering News-Record.

Heavy Construction Engineer-Manager, extensive paving and earthwork experience—Best References—available in January, for permanent position only, with a stable progressive firm. Keith Jared, 1400 Belew, Irving, Texas. Phone Blackburn 3-7533.

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c/o ENGINEERING NEWS-RECORD

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c/o ENGINEERING NEWS-RECORD
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18' x 35' hull, Georgia pump, G. M. 6-71 and G. M. 2-71, 500' of pipe, excellent condition.

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All Equipment Overhauled—Top Condition

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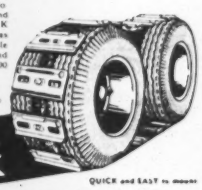

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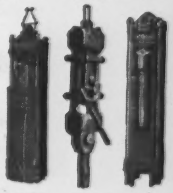

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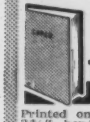

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Healthier New Year to Labor

CONSIDERING THE RACKETEERING ACTIVITIES in trade unions, revealed by the McClellan committee investigation, organized labor will fare better on legislation in 1958 than it otherwise could reasonably have expected. At least there will be no Administration-backed federal "right to work" law, and no concerted effort to make unions subject to the anti-trust laws, according to Secretary of Labor Mitchell.

From the same source, however, comes the news that legislation is distinctly possible which would compel unions to submit financial reports annually to the Labor Department and to disclose details of their pension and welfare plans. They would also have to hold secret elections at frequent intervals, reveal disciplinary actions against members and eschew any payments to union officials by employers. The punishment for violation would be loss of exempt tax status and fines or imprisonment for union officials.

Such legislation, which would have been violently opposed before the committee hearing, can now perhaps enlist the support of responsible union officials. If so, the hearings will have strengthened the positions of such officials, which should be a healthy thing for the labor movement. Now if the public can be better protected against "secondary boycott," and if a saner view can be made to prevail with respect to unrealistic wage demands, the labor movement can again aspire to the position of confidence its better leaders have always sought. There was a time in 1957 when such asperations were on pretty shaky ground; 1958 can be better.

Happier New Year to Zoning

THIS BEING THE TIME for good wishes and firm resolutions, zoning is a field of activity which comes to mind as needing both.

The vital service that zoning commissions and zoning experts perform is too often overlooked. The individuals who work in this field are invariably civic minded, sincere and dedicated. But for the most part they labor in obscurity until they render a report when, almost invariably, they gain the limelight because the brickbats begin to fly. Zoners who have the courage and the stamina to weather the storm sometimes live long enough to win plaudits, but this occurs too seldom.

So it does not seem out of place to wish them a happier year in 1958, and to hope that they will make firm resolutions to continue to battle for their right to work effectively.

Two recent zoning plans in Connecticut serve to illustrate the general situation. In New Canaan a zoning regulation, which proposed that four-acre plots be required for a house in a certain area, was set aside by a state Court of Common Pleas. A few weeks later a comprehensive zoning plan for Greenwich was announced. Here, one to four acres, depending on the section of town, was set as the residential plot size. Public hearings, scheduled soon, will no doubt spark opposition, and the courts are still to be heard from. The important point is that these two towns are attempting to plan their future, and that their actions should receive encouragement as well as meet obstruction.

Greenwich (population 48,000) has, in fact, proposed such a far-seeing plan of development and control that other cities would do well to study it closely. Each city, of course, will have its own objectives, and it is important to know what these are. In Greenwich's case it wants to preserve its residential character against advancing metropolitan encroachment. Thus it confines manufacturing and commercial establishment to the areas in which they now exist; large shopping centers are not wanted. At the same time an area is set aside in which campus-type office and laboratory headquarters of large concerns will be welcome. That this area is placed adjacent to a large and growing airport, would seem to be a questionable proposal, but the zoners deserve credit for making a definite recommendation, nevertheless. Finally, the plan sets aside or recommends for purchase a thousand acres for six parks.

The great changes in living patterns, which will follow in the wake of the interstate highway construction program, will require more and more cities to come to grips with their zoning problem as Greenwich has. In doing so they will be well advised to support their zoning commissions in every possible way. This is not to say that every zoning recommendation should go unquestioned. It is only to urge that zoning be recognized for the important service that it renders, and that the zoners be given credit for being the sensible and thoughtful planners they usually are.

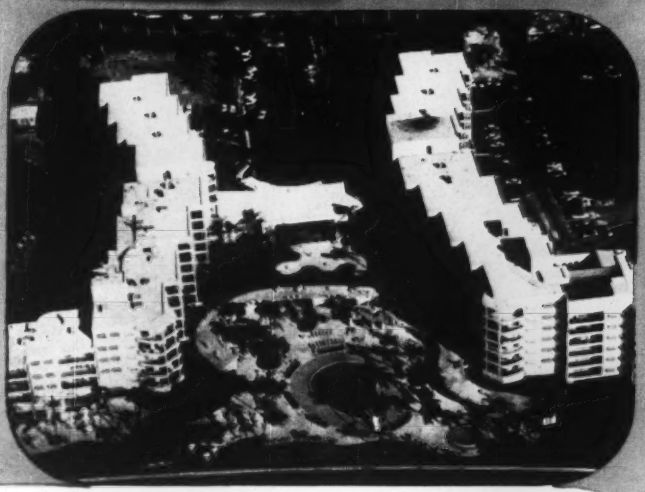
Safer New Year on the Roads!

ONE OF THE STATED OBJECTIVES of the interstate highway system now under construction is increased safety on the new roads.

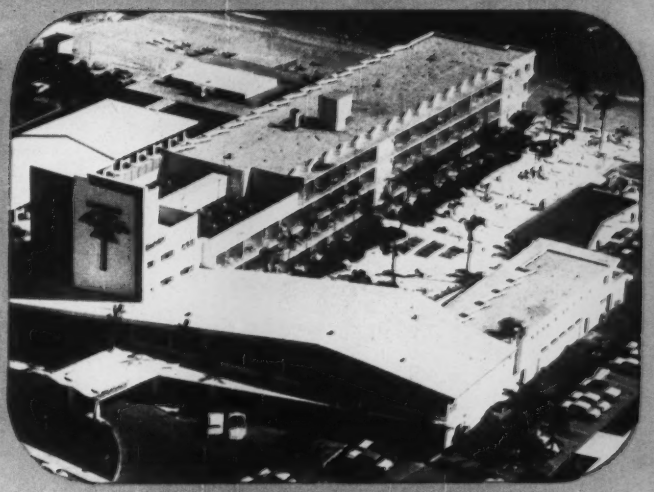
If anyone doubts that a reduction in traffic accidents, through well-engineered highways, would be reason in itself for the whole new road network, let him consider the shocking totals released by the Association of Casualty and Surety Companies.

According to these figures, 1957 motor vehicle accidents will cost the United States a total of 38,300 deaths; 1,856,000 injuries; and $7,255,600,000. Take another look at that dollar figure—nearly $7.3 billion. That figures out to $42.23 for every man, woman and child in the nation, including charges for property damage, repair, legal and medical fees, insurance and loss of income.

Think what even a 10% reduction in accidents could mean.



Palm Beach Towers Hotel, Palm Beach, Fla.; Arch.—John Hans Graham & Assocs., Washington, D. C.; Struc. Engr.—Oboler & Clarke, Miami; Consltg. Engr.—Norman C. Schmid & Assocs. Palm Beach; G. C.—Taylor Construction Co., Miami; Pozzolith Ready-Mixed concrete—Burnup & Sims, and Rinker Materials, West Palm Beach.



Thunderbird Motel, Miami Beach, Fla.; Archt.—Norman Giller & Assocs., Miami Beach; Contr.— Taylor Construction Co., Miami; Engr. —Jules Channing, Miami; Pozzolith Ready-Mixed concrete—Maule Industries, Inc. & Acme Concrete Corp.

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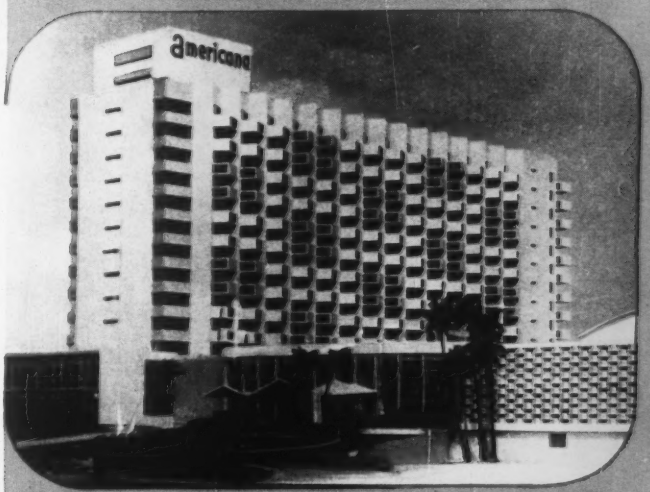

Americana Hotel, Bal Harbor, Miami Beach, Fla.; Archt.—Morris Lapidus, Miami Beach; Engr.—Oboler & Clarke, Miami Beach; G. C. —Taylor Construction Co., Miami; Pozzolith Ready-Mixed concrete —Maule Industries, Inc.

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